

AMERICAN BEE JOURNAL

MAY, 1919



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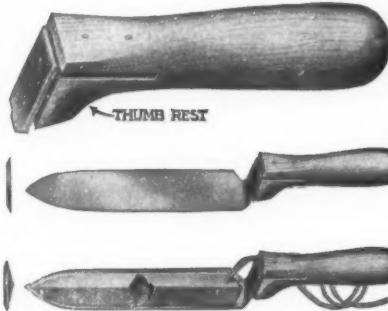
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AMERICAN BEE JOURNAL
HAMILTON, ILLINOIS

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The Apiary Department (which is in charge of experienced supply men, who are also practical beekeepers) maintains a constant excellence of product and offers unsurpassed service.

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Superior Honey Co.,
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Dear Sirs: I am shipping you 62 pounds of beeswax. Please manufacture it into Medium Brood Foundation. I don't want any better than you made me last year, as my bees took to yours first. Kindly give me an estimate of number of sheets, as I want to get enough for 100 hives.

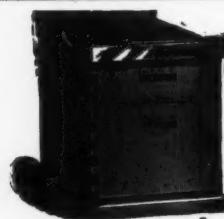
Yours truly,

GEO. GOSVENOR.

Nampa, Idaho, March 12, 1919.

Allow us to state that we have never met Mr. Gosvenor, and this testimonial comes to us entirely unsolicited. We have never gone so far as a certain manufacturer who advertises that "the bees take to theirs first," but we are pleased to note that Mr. Gosvenor's bees took to ours first. This verifies our own exhaustive experiments whereby we have proven that any such faculty among the bees is determined entirely by local conditions, such as the freshness of foundation used, the weight of the sheets, the nature of the honey-flow, etc. We do claim, however, that our "SUPERIOR" FOUNDATION is not surpassed in quality by any other make.

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that resist disease well, therefore must be hardy, prolific, and hustlers; they are gentle. Untested, \$1 each, 6 for \$5.50, 12 for \$10. Select tested, \$2 each. Plans, "How to Introduce Queens" and "Increase," 25¢.

E. E. MOTT Glenwood, Mich.

Home Wax Rendering— Does It Pay?

More and more we are becoming a nation of specialists. In former times, for various reasons, it was advisable to spin cloth at home, to make clothes, to grind flour, etc.

Yet it is seldom that such operations are undertaken now by the individual family. It does not pay. The time spent if valued at anything, would more than pay for the finished product.

Not only are you saving time, but also beeswax as a battery of high pressure steam presses under the supervision of a specialist can get more wax out of the same amount of combs than can the individual beekeeper with a makeshift press on a kitchen range.

Dear Sirs:

"Your bill for rendering beeswax, enclosing check for \$21.65, to pay for wax retained by you was received yesterday. I am very much pleased with the result of my sending old combs to you. The quantity of wax secured is greater than I expected and the exceeding promptness with which the matter was attended to was very gratifying. If I have combs of the same kind to be rendered again I shall certainly send them to you."

February 16, 1919 HANNAH R. SEWELL, Forest Glen, Md.

Gentlemen:

"Your statement of wax rendered and bill for making same into foundation is received. I enclose check for \$7.93 for the balance due you. You got 25 pounds more of wax out of it than I estimated and I also got rid of a messy job.

FLOYD MARKHAM, Ypsilanti, Mich.

Send us your refuse, scrapings, combs or cappings.

When shipping same be sure to bill as **Beeswax Refuse** so as to get the lowest freight rate.

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Those of you who are equipped for **comb honey---stick to it.**

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Announcement---Addition to the Beeware Family



Following the Lewis Policy of cooperation between manufacturer and beekeeper, we are glad to announce the active connection with our company of Mr. Kenneth Hawkins, bee specialist, who for seventeen months was in charge of bee culture extension work in the fifteen Southern States for the U. S. Department of Agriculture under Dr. E. F. Phillips at Washington.

The subject of this announcement, although a younger member of the bee-keeping fraternity, has been devoting his entire time to bee culture as a livelihood since 1909. He is well known to many beekeepers as formerly the breeder of "Quality Hill" queen bees at Plainfield, Illinois, and has an acquaintance with hundreds of beekeepers in the south, as well as in the middle west, through his extension work in bee culture with the U. S. Government. At present Mr. Hawkins owns or operates apiaries in Illinois, Florida, Texas and Wisconsin.

He will devote his entire time to the service of the G. B. Lewis Company, and will handle bee culture problems in their relation to the manufacture of bee supplies and will be ever ready to answer any queries on bee culture which may be sent to the office of the G. B. Lewis Company or any of their distributors.

G. B. LEWIS COMPANY, Watertown, Wis.



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MONTHLY, \$1.00 A YEAR

SOME SOUTHERN HONEY PLANTS

BY FRANK C. PELLETT
Photos by Florida Photographic Concern

THE honey plants of the north are widely distributed and the same source is important over a wide range of territory. In the south many plants which are important are restricted to a comparatively small range of territory. The following plants are all valuable in a few localities, but are not widely distributed:

Black Mangrove

The Black Mangrove, *Avicennia nitida*, is also known as blackwood or blacktree. It is an evergreen tree, growing along the seashores of the coast of Florida. It is said, also to occur to some extent along the gulf coast to Texas and throughout the coasts of Tropical America. It varies from a bushy shrub to a tall tree 60 or more feet in height in tropical regions. The wood is coarse-grained, hard and very durable in contact with the soil. The tree is to be found only in the vicinity of salt water.

The honey from mangrove is light in color, mild in flavor and is generally regarded as of first quality. According to E. G. Baldwin it was the heaviest yielder of nectar known in the south, prior to the big freeze in 1895. In one year he reports Harry Mitchell, of Hawk's Park, as having secured an average of 380 pounds per colony from mangrove alone. Following the freeze it failed to yield nectar in surplus quantity for about fifteen years, and reports since that time have not indicated that it is up to its former importance.

The blooming period opens about the middle of June and usually includes the entire month of July. The flow usually lasts from six to eight weeks.

Pennyroyal

Wild Pennyroyal, *Satureja rigida*, is a square-stemmed plant of the mint family that grows abundantly on the sandy pine lands of the south

half of Florida. It begins blooming in December in the southern part of its range, and blooms till early in March. Weather conditions are too uncertain during the winter months to favor storing much surplus honey. However, according to Poppleton (Review, Jan., 1893), it is the source of some surplus and from it the bees are stimulated to begin heavy brood-rearing about Christmas. In an occa-

casional season a fair amount of surplus was secured, sometimes as much as 50 pounds per colony. The honey is said to be light in color, good flavor and heavy body—a first-class article.

Blooming as it does in the winter months, it is invaluable to the bee-keeper whose bees have access to it. If no surplus is secured it serves to fill the hives with bees and honey at an important season and to prepare for the later crops to follow.

Gallberry

The Gallberry, in some localities better known as Inkberry, *Ilex glabra*, is usually heard of as a honey plant only in the south. However, it occurs as far north as Nova Scotia on the seashore and along the coast from Massachusetts to Virginia and Florida, and west to Louisiana. It is a common shrub in the low pine barrens of all the Gulf States. It is a small evergreen shrub with small, dark leaves. It is an important honey plant in southern Georgia, where it is widely distributed over the sandy lands, especially of the coastal plains. It grows in dense thickets and rapidly extends over newly cleared lands.

A Valuable Plant

"As a honey plant perhaps it has no equal in the southeast. We have never failed to get a surplus from it, even during the most unfavorable weather conditions. It begins to bloom the first of May and continues for 24 to 28 days. During this time bees disregard other bloom, working it up to about 8 o'clock for pollen, then the flow comes on for the remainder of the day. * * * It is a great bloomer, even the stems are rolls of bloom. * * * We have never taken off a large crop of this honey, as 147 pounds of surplus is the best crop we have ever had from one colony. The honey is a light amber color, has a heavy body, a very mild



Mangrove bloom.

taste, and is highly flavored. The demand for this honey is so great that we cannot furnish our local markets, consequently very little is shipped from the southeast to other markets.

"We have raised tons of this honey and have never seen a pound of the pure article, well ripened, that granulated.

"It has been said that it is impossible to overstock a good gallberry location. We do not know that this statement is true, but we have never heard of one being overstocked. We have had bees in a location where there were 362 colonies with the same result as with 100 colonies. Good gallberry locations are nearly numberless and large quantities of this fine honey are wasted every year in localities where there is not a bee to gather it. The gallberry should be included in the list of the best honey-plants."

J. J. Wilder, Cordele, Ga., Gleanings, page 1200, September, 1907.

The Banana

Since the banana plant is little

grown in the United States it is seldom mentioned as a honey plant, yet it secretes nectar very abundantly, and in countries where bananas are grown on a large scale it must be important to the beekeeper. We are showing herewith two illustrations, one of the plant in fruit and one showing the opening of the bloom.

The following description of the possibilities of this plant is reprinted from page 83 of The American Bee Journal for 1880, and was written by a correspondent in Clifton Springs, Florida:

"Recently noticing bees working upon blossoms I concluded to examine them. To my surprise I found that each blossom had a sack on its under side, which contained several drops of nectar of the consistency and sweetness of thin syrup. This sack gradually opens, allowing the contents to escape, unless appropriated by some insect. The blossom hangs in a position that rain cannot enter to dilute or wash out the nectar. Procuring a teaspoon I emp-



Bloom of banana



Banana stalk in fruit.

ties into it the contents of a dozen blossoms, which filled it full. Each stalk, on good land, will produce a head having a hundred hands or divisions of blossoms, and each hand averages six blossoms, giving 600 blossoms to the stalk. Estimating 100 teaspoonsfuls to the pint (88 of the one used filled a pint measure) we have 50 spoonfuls, or half a pint to the stalk. Planted in checks 8x8 feet, there will be 680 plants to the acre, yielding, according to the above estimate, 42½ gallons of nectar. But usually more than one stalk in a hill blossoms and matures fruit annually. The blossoms used were below those that produce fruit, which later, I am told, are much richer in honey.

"The first blossoms which open mature fruit. These vary in number from 25 to 100, according to quality of land, cultivation, etc. They sell here at from 1½ to 2 cents per finger or pod. Estimating fruit at 25 fingers per bunch and the bunches at 25 cents each—which, you see, is a low estimate for both, the result will be a barrel of nectar on \$170 worth of fruit per acre. How does this showing compare with other cultivated plants as combined honey and money crop?"

Uniting Bees

By J. F. Diemer

IN giving the system which I use in uniting bees, I caution the beginner, or those with little experience, not to get the bees excited in looking for the queens, as this will be sure to give trouble. Efficiency is



Gallberry in bloom.

the result of experience. Reading won't give a man experience, but is of great help to all of us. There are many things that I don't know about bees, but I know a great deal of their language and how to mix them without their fighting.

It is as necessary to know how to unite bees as to know how to divide them when in need of increase. I will tell my way in as few words as possible.

In the spring of 1918, a yard of 55 colonies was reduced to 25 very strong by uniting. This yard was arranged in the "four-in-a-group" plan, two facing east and two facing west, back to back. All the queens were caught, caged and removed, each colony reduced to one story and pried loose from its bottom so as to be lifted up without jarring. The next day each pair that faced in the same direction was united, by carefully lifting one and gently setting it on top of the other brood-chamber. A queen was introduced, via the candy route, at the same time.

The extra five colonies were carried from 10 to 20 feet and their best combs divided up among the other colonies.

While carrying one of these colonies, my foot and a big rock had a head-on collision, which started a big roar in the hive. So it was set back on its own bottom till it got quiet again.

If there is any robbing going on, don't try this, for it won't work. All depends upon the bees being quiet, no excitement and no robbing. It seems to me that some people use too much smoke. I use very little at any

time, and none when there is a honey flow.

One of my neighbors has a hive of bees. One day he pried the cover of the hive and jarred their nerves. Those bees went "over the top" with bayonets ready. He blew a lot of hot smoke in their eyes. They got excited and flew around, crawled out of the hive, on the ground, up his pants legs, and he got stung and got hot, and after six hours looking for the queen he gave it up and quit. The bees were still hot the next day, when I went to his place and found the queen on the first frame I lifted out.

Moral.—A nice quiet beeyard. Everybody attending to his own business. No one blowing hot smoke in anybody's eyes. This is the time to mix them up.

Making Big Hives From Small Ones

By W. C. Rossinck

I HAVE become very much interested in the articles in the American Bee Journal on larger hives. The great question that confronts me is, how can I get them the cheapest when supplies are so high? Last December I bought some new 10-frame (Langstroth) double-wall hives, for I am highly in favor of them, even though I winter my bees in the cellar, because the weather here in Michigan is too changeable in early spring; but since

I want a larger hive, I take the frames out of the original brood-chamber and place a No. 1 super, 10-frame size, on top of this brood-chamber and use the top and bottom-bar of the Langstroth frames with new end-bars $14\frac{1}{4}$ inches long throughout, and nail these up to hang in this super, piercing six holes in each of these end-bars for wiring. Then I take $1\frac{1}{2}$ sheets of foundation and lay these on the table or bench before me, just lapping the two edges about one-eighth of an inch, and run over these edges with a hot little piece of iron, melting the two into one large and nearly square sheet, and put this into the frames. This foundation then reaches within 2 inches of the bottom-bar.

This spring, when the queens commence laying in a few of the center frames in their old hives I expect to lift out these frames with bees, put on my No. 1 super and put about 7 of the 10-frames and all the bees back into this super and then scatter three of these new deep frames between them. Then, as the bees draw out this foundation, I will keep taking out the old Langstroth frames and placing the new deep frames in their place. Thus the expense is very small and I can continue using all the old supers for extracting.

Besides, I also think that this deep frame will suit the queen better than any other, owing to the fact that a queen always likes to lay in a circle,



Typical Black Mangrove tree in South Florida.

and these frames will give her a more perfect and larger circle to lay in.

However, I am going to try it on some hives this spring, and I am not much afraid that it will not work out well, but if I make any more of these frames I shall have them cut to the right size by the manufacturer, and will order the foundation 12 inches wide. Why not have a larger hive at such a small expense?

The inside dimensions of these frames are $13\frac{3}{4} \times 16\frac{3}{4}$, or 222 square inches. This makes a 10-frame hive some larger than a Dadant hive and an 8-frame hive a trifle smaller than a Dadant hive.

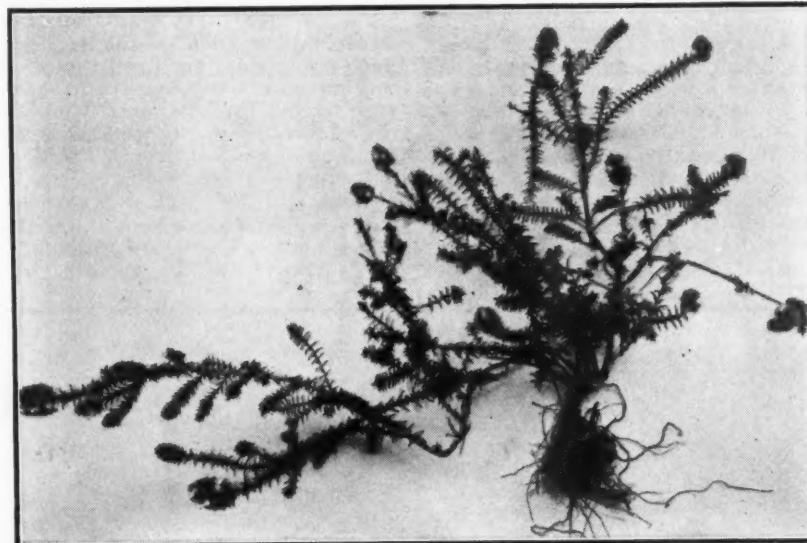
If any try this plan, I shall be glad to hear of their results. Criticisms invited.

Fremont, Mich.

(The only fault we can find with this economical trial of large hives is the hanging of foundation 2 inches shallower than the frames. The bees

method of building up an apiary, and more than once the count has nearly reached ten. It is the purpose of this article to make plain the cause and offer the remedy.

For many years the idea has prevailed that bees and other insects require and use up much air. Witness the innumerable instances of shutting an insect into a pasteboard box and then punching the cover full of holes lest the poor insect suffocate. In spite of the fact that many a successful bee tree has offered evidence to the contrary with its tiny knot-hole, the only opening to the home of the bees, the belief has prevailed that bees consume air at an enormous rate. Years back the writer became convinced that bees, while quiet use an extremely small amount of air, and on one occasion wintered a colony sealed in a packing case. I therefore make unhesitatingly this statement: Bees normally require a very small amount of air.



Wild Pennyroyal in bloom.

may build drone comb in that 2-inch space. It would be better to cut the foundation of the proper depth. But foundation of such depth may be more difficult to make and it may sag still more than the same goods of ordinary depth. However, these things can only be known by actual trial.—Editor.)

Bees by Parcel Post

By Allen Latham

THE pound package business has the promise of a big future, both for the man producing the bees and the purchaser as well. If, however, the future is to give all it promises, or more, it is imperative that the package of bees reach its destination in such condition of health and vitality that a vigorous nucleus can be started with the same. It is arrives with half the bees dead and the remaining half largely devitalized, the resulting nucleus will only be a source of annoyance and expense.

Some solar plexus blows have in the recent past been given to this

The former belief led to the making of shipping cases with walls of wire-cloth. This appeared logical, and if the theory had been correct would have yielded uniformly good results. Practice soon proved the contrary, or shall I say proved that something was wrong? In looking for the error we find that it is only under stress of excitement and undue activity that bees use much air. The suggestion even arises that the presence of much circulation may, on occasion, react upon the bee to cause excessive activity. Even if the exposure does not cause increased activity, it is certain to lead to the greater consumption of food. Bees must eat to keep warm, and if cool air is blown through their prison they eat excessively. Then, if not before, restlessness will come upon the bees, for much food consumption under such conditions leads inevitably to a congestion of the system that creates in the bee an inordinate desire to get out into the free air. Hence the poor bees struggle to get out of their prison, and their struggles do not end until death or the

opening of the prison doors bring relief.

In an effort to counteract the evil resulting from the excess of exposure those seeking a remedy recalled the quieting effect of spraying water upon a newly clustered swarm. Was it not logical to spray these imprisoned bees to keep them quiet? Logical according to the immediate premises, but a most atrocious conclusion because of an undistributed earlier premise. Bees in a clustered swarm are one set of bees, those imprisoned in a cage are a different set of bees. Like many a remedy in human ills, the relief was only temporary, and the final effect of the medicine was to make the patient worse. The poor bees are wet and chilled. They can get dry and warm only by licking up the water. This calls for further consumption of food and in a short time their restlessness is worse than ever. Added to that, their intestines are full of water, and soon their condition is similar to that of bees dying from dysentery in winter. Even before the sprinkling, the bodies of the bees were surcharged with water from excessive food consumption, and their jailer adds to their misery by the sprinkling. Is it anything to wonder at, that the package of bees arrives at its destination with half the bees dead and the remaining bees with barely life enough to crawl about in their prison?

It must be borne in mind, whenever one seeks to diagnose a difficulty affecting bees, that bees and human beings are not in the least alike. Insects and mammals are so far removed in biology that a remedy for one may be a poison for the other. It is highly probable that bees possess no respiratory glands at all akin to our own. That they possess in a high degree the ability to eliminate water is perfectly obvious, but eliminating water and getting rid of it are two different things. Only two ways are open to the bee, one is by respiration and the other by expulsion of the bowels. The first is achieved only by excessive activity and heat production, the other only in a cleansing flight. The imprisoned bees cannot adequately use either of these methods, and must suffer and die. If we are to find a remedy for an evil affecting our bees let us first of all cease to have any idea that bees and human beings function alike.

It will be seen from what has already been written that success in the shipment of bees by package must lie in the conservation of bee-energy, not in its waste. In every possible way we must keep the bees quiet. How, then, can we keep the bees quiet?

In answering the question just put, I would follow the same channel of thought that has led to the solution of so many other bee problems. As Dr. Miller would say, take it to the bees. So I will ask another question: Under what conditions do bees keep quiet? Is not the answer, When darkness and health are both present?



Miss Brown, after work is done.

Acting upon this mental deduction I set out a few years back to devise a shipping-case for the bees in which darkness was the first consideration. For two seasons this case has been in use by me, and its use has been attended by phenomenal results. Such statements in the letters from my customers as follow are not uncommon: "There was not a dead bee;" There were not to exceed 25 dead bees in the entire ten packages;" "The bees were so quiet that I thought they were dead until I opened up the package." This cage or shipping-case is under process of patenting and will soon be put upon the market. In a later article the case will be described, accompanied by photographs of the same. For the present I will merely say that the case is made of wooden walls instead of wire-cloth. The bees can get air as they desire it, but no currents of air strike them, and **no light**. Ninety-nine per cent of the bees remain quietly clustered, a few only are always seeking an exit to the outside world. During the trip small patches of comb are built and the queen is usually laying in the same.

The number of bees seeking an exit depends very largely upon how the bees are put up. If only young bees are caged, very few bees are restless during the journey. Old bees should never be put in with the others. The writer has every confidence in this shipping-case, and predicts a prosperous future for the pound package. With this case in use one can rest assured that the packages of bees will arrive in perfect shape, barring accident. Accidents we cannot control, but with this cage we need only to be certain that proper food and proper bees go into the case in order to feel assured that the buyer will be pleased with the goods upon their arrival.

Norwich, Conn.

A Lady Expert With Bees

I have just returned from a trip to one of the other islands, where Miss Mae Brown (who has complete charge of our queen breeding and requeening operations) was in the act of requeening 2273 colonies of bees. I stayed with her watching the process for nearly five weeks.

In five days after she arrived at the apiaries she had put queen-cells into seventy-one colonies of bees. The queens had previously been removed from these seventy-one colonies, and they accepted 941 buds of the lot that she put in. To take care of these 941 queen buds on the 9th day, or before the young queens emerged, required a great deal of work in searching out and killing old queens, etc. However, she began this work two days earlier with her usual staff of four Japanese men, and it was a real pleasure watching them work. Through the whole process they were striving to outdo each other in finding queens, while Miss Brown kept her note book and scissors on hand. The note book contained data on each of the old queens and it was necessary to make some new entries for future use, while the scissors were used for clipping the wing of any queen that should need it. In this way she was able to examine an average of 350 queens per day, as well as introduce the buds as they came along on the ninth day. In the meantime extra buds had been put into these first mentioned 71 colonies, as she required several hundred additional cells to complete the work. She generally kills 50 per cent of the old queens so that all are requeened every two years.

Most of these young queens were laying when I left the work. As she was searching for these young queens to examine their condition and clip their wings before closing up the lower box, or brood-nest for the year, I had the pleasure of seeing as fine a lot of young Golden Italian queens as it is the lot of man to see.

Just before leaving for home, I had Miss Mae Brown stand with her four Japanese men while I took a snap shot of them. Inclosed you will find a copy of the same.

E. C. SMITH,
Honolulu, T. H.
(Queen buds is a term used in Hawaii for queen-cells.—Ed.)

Bees to Japan

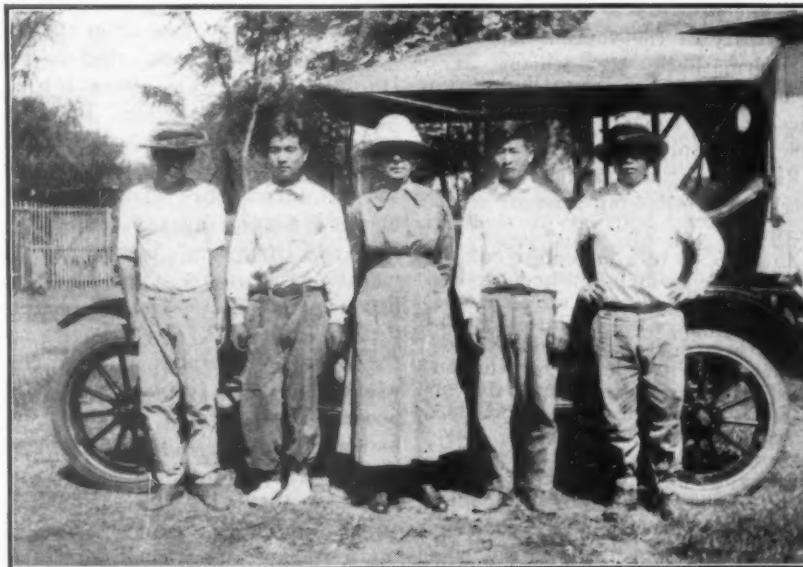
1. Can I take a few Italian queen bees to Japan in May? It takes 17 days for the voyage.

2. Will you tell me how I should pack them? R. H. W.

Los Angeles, Calif.

Answer.—The dealers in bees and supplies sell "long-distance mailing cages" at 10 cents each. These are provisioned with candy for the trip. Put a queen in each and place with her a fair number of bees, enough to occupy the cage without crowding. The bees to take for that purpose are bees that are active field workers, but not too old. Old bees are recognized by their shiny looks. The young bees have more hairs and look fuller. Take them as they come home from the field and you will be sure not to make a mistake. But if you are acquainted with bees, you may take them from the inside of the hive. You should make sure that you do not take young bees that have never yet had a flight.

For the transportation, keep them in a place where they will have warm air, not below 65 degrees; no light, no disturbance. Do not handle them any more than you can help, and when you reach your destination introduce them to colonies as early as possible. We have kept bees a month in this way, with very little loss. If the candy is so dry that they cut out particles of it and it falls out of the cage, moisten the cage slightly with your finger wet with water. Otherwise do not give them any water; they do not need it, when their food is of the proper consistency. Water is needed only for brood-rearing.—C. P. D.



Miss Brown and four Japanese assistants

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Warning to Italian Beekeepers

In "L'Apicoltura Italiana" for February, the noted queen breeder of Bologna, E. Penna, warns the Italian beekeepers against any importation of bees from beyond the Alps into the peninsula of Italy, since the Italian race of bees is prized everywhere, and its purity is of great value.

We believe that the beekeepers of the entire world will join him in this warning. Although some other races have proven good, such as the Carniolan and the Caucasian, the Italian bees are the only race, of gentle disposition and great activity, whose purity may be easily ascertained in the color of the bees. A slight mixture of the common black bee will show itself immediately in the progeny, while a slight mixture of the black bee in the Carniolan or the Caucasian gray bee will go unnoticed.

Mr. Penna lays great stress upon the value of the Italian bees as better able to withstand the Isle-of-Wight disease and the bacillus pluton (also called European foulbrood and bacillus alvei, Cheshire) than any other race known. In this country we know but little about the Isle-of-Wight disease, but it is well-known that the introduction of young Italian queens in colonies suffering of European foulbrood has often, if not always, helped to cure the colony.

Porto Rico Beekeeping

The industry of beekeeping, which was reported as in its infancy in Porto Rico in 1911, by circular No. 13 of the Porto Rico Agricultural Experiment Station, is progressing fast. Mr. Elton Warner, who has spent most of his life in Mexico and Porto Rico, gave up a very lucrative position in the U. S. Government employ, in the island, in order to take up beekeeping. Mr. Warner now has some 1,500 colonies in Porto Rico, as well as some 500 in North Carolina. The writer met him at Ithaca and found him full of enthusiasm, for after a few years of trial, Mr. Warner knows that an independent life is sure to be the reward of the progressive bee-keeper.

The Revived Belgians

Many among our readers have had occasion to feel the pangs of anxiety and incertitude over the fate of some of their friends or relatives in the terrible conflict which is hardly yet closed. We had a feeling akin to this incertitude concerning our Belgian

THE EDITOR'S VIEWPOINT

Bees as Trophies of War

The "Revue Francaise d'Apiculture," of Marseille, is authority for the statement that the Military Administration of Germany offered for sale a large number of colonies of bees taken from the invaded countries. A man of the name of Herter, of Heilbronn, Wurtemberg, stated that the Wurtemberg Beekeepers' Association had thus secured 300 colonies at the prices of 28 marks for skeps and 54 marks for movable-frame hives. This Mr. Herter had secured two colonies, one of which perished in the trip, but the other one was for him a "dear souvenir of the war."

We trust the Beekeepers' Association will be able to deny this statement.

Refrigerated Queen Losing Her Fertility and Regaining it

Concerning the possibility of chilling a queen so as to partly destroy the fertility of the spermatozooids in her spermatheca, Mr. Marius Barthelemy, the capable director of the Experimental Apiary of the French "Societe d' Apiculture des Bouches-Du-Rhone" at Marseille, France, sends us the following account of an experiment:

"I introduced to a queenless colony a young queen which had been laying normally in a nucleus of three combs for several days. The introduction was performed at 1:30 p. m., by dipping her in a little honey which had been diluted with a tablespoonful of cold water. The operation succeeded fully and the queen spread her laying rapidly. But after three weeks, while examining the colony, I found upon 7 combs a tremendous amount of drone-brood, extending to about nine-tenths of the total. This was all in worker-cells, as there was not a single drone-cell in those combs.

Having allowed the queen to remain, in order to exhibit this peculiar case to my colleagues, I later noticed a decrease in the amount of drone-brood and a corresponding increase in the number of cells occupied with worker-brood, especially at the upper edge of the combs. I removed the queen and placed her in a nucleus where her laying gradually returned to normal conditions. The introduction of a normal queen in the drone-brood colony soon brought things back to ordinary conditions.

What do you think of this abnormal drone-laying in a healthy queen? Is it not probably due to the refrigeration which the queen suffered when I dipped her into cold sweetened water? It seems to me that this is well proven by the fact that the bees of the nucleus from which she was originally taken managed to rear another good queen from the brood that she had left behind and which also produced healthy workers. I am glad to call this to your attention, as it is the first case of this kind that I have ever witnessed."

"Marius Barthelemy."

This is interesting and of some importance in its bearing upon the possibility of destroying the worker-laying capacity of a queen through cold. Messrs. Dzierzon, Berlepsch and Mahan had also destroyed the life of spermatozooids in the sperm sac of queens, by refrigeration, as mentioned at paragraph 151 of "The Hive and Honeybee"; but in the cases mentioned by them, the queens had become to all appearances permanently injured. The above case shows a temporary injury, from which the queen recovered, probably because the action of the cold water had not been as thorough as in the cases mentioned by these experimenters. Let us avoid chilling our queens by dipping them in cold solutions or exposing them to low temperatures.—Editor.

beekeeper friends. The editor of the "Rucher Belge," a publication of 25 years standing and one of the most advanced in Europe, disappeared in the abyss of the German invasion at the very beginning of the war. His home and the Association which his magazine represented, the "Society of Apiculture of the Basin of the Meuse," were at the very spot of the opening of hostilities, in the vicinity of Liege, where the atrocities of the invaders were most marked.

Letters to them brought back no replies, and we thought them dead. Imagine our pleasure in receiving the following a few days ago, from this same editor, Mr. A. Watheler:

Prayon-Trooz, Jan. 2, 1919.

Dear Mr. Dadant: We are at last freed of the bandits. In April, 1915, I received your excellent letter of August, 1914. The sentiments which you expressed in this letter gave us the hope that the noble Republic of the United States would do what she actually did—save us from starvation and deliver us, as well as the rest of Europe, from the Huns.

I cannot clearly express the gratitude which we feel towards the United States for this. It is also impossible to describe our sufferings during those 4 years.

My family is in good health. Two of my three sons served in the army and are also safe, as well as my nephews. We are now better nourished, we have bread in sufficiency and are no longer compelled to eat turnips, beets and rutabagas. But clothing, footwear, etc., are still at unapproachable prices. Let us hope that within a few months everything will become normal.

None of our bee magazines have appeared during the war. Even now print paper is scarce and out of reach. We do not know when we may again begin the publication of the "Rucher Belge" (Belgian Apairy.)

If you can spare me the missing numbers of the American Bee Journal, you will please me greatly, for I have received none since August, 1914.

You should be proud, dear Mr. Dadant, of your native country, as well as of your adopted country. You cannot have an adequate idea of the enthusiasm with which the Allies are welcomed here, as they pass through to occupy the country of our invaders.

Accept my best wishes for you and all your people.

A. WATHELET.

Does the Yellow Jasmine Poison Bees?

On page 500 of the American Bee Journal for November, 1879, Mr. J. H. Brown, of Augusta, Ga., makes the following report:

"In some sections of the South, par-

ticularly on light, sandy soils, there may be found some Yellow Jasmine (*gelseminum sempervirens*). As its flowers possess very decided toxic properties, it is not a very desirable plant to have within the range of bees. It blooms after the alder. While our native black bees are very seldom seen working upon it, the Italians, in some seasons, will work upon it quite briskly. I am inclined to think, from close observation, that it is mostly pollen they gather from it, though in some seasons it does yield some honey.

"I have more particularly named this plant because of its poisonous effects upon young Italian bees immediately after taking their first meal. For the past nine years I have observed, commencing with the opening of the Yellow Jasmine flowers, a very fatal disease attacking the young bees and continuing until the cessation of the bloom. The malady would then cease as quickly as it came. The symptoms of the poisoning are: the abdomen becomes very much distended, and the bee acts as though intoxicated. There is great loss of muscular power. The bee, unless too far gone, slowly crawls out of the hive and very soon expires. When examined, the abdomen seems to be distended with a sort of serous looking fluid. The deaths in twenty-four hours, in strong stocks with much hatching brood, may amount to one-half pint, often much more.

We are much interested in knowing whether the nectar gathered from this plant is really the cause of this disorder. We wrote to Mr. T. W. Livingston, of Norman Park, Ga., and asked his opinion. His reply follows:

"I have for many years noticed the bee disease described, and was out among the bees yesterday where there was much Yellow Jasmine in bloom. I saw a very few bees working on the bloom, more bumblebees than honeybees, and saw several colonies affected slightly with the disease peculiar to this time of the year. In some cases the bees do not swell up and in others they do. Some have a trembling motion, and others are stupid and can scarcely move. I have seen the same disease where there was no Yellow Jasmine that I know of, but much more of it where that plant was plentiful. It may be caused by it. I was told several years ago by the Florida State Chemist, who had analyzed a sample of honey that

had poisoned some people, that the honey contained pollen from the Yellow Jasmine, in which he found the poison that had done the damage."

We would be very glad if readers living where this plant is common, would write us whether they have made similar observations. We are anxious to secure some further information regarding the possible poisonous properties of the Yellow Jasmine to the bees.

Texas to Experiment

We are much pleased to announce to our readers that the Texas Legislature has made a liberal appropriation for the establishment of experimental apiaries, under the direction of Prof. F. B. Paddock, State Entomologist, of College Station. A trained man will be placed in charge, and extended work will be undertaken looking toward the solving of the special problems of beekeeping in the Lone Star State. Beekeeping is very highly specialized in Texas, and we look for some most excellent results to come from this experimental work. We would like to see experimental apiaries in charge of capable men established in every State where beekeeping is an important industry, and hope that the time will not be long until such a result is achieved.

Honey Prices

Just now, when the market prices for all commodities are rapidly falling, it is well for the beekeeper to bear in mind the importance of developing the home market to the limit of its capacity. During recent months, because of the restrictions of the food administration on the sugar supply, many new uses have been found for honey, and many people have become accustomed to its use who have not previously been in the habit of buying this particular product. The removing of the restrictions of the food administration, again places honey in direct competition with sugar and other sweet products. It will be necessary for beekeepers to resort to active measures to advertise honey, and stimulate its use in every possible way, if good prices are to continue.

If every beekeeper will cultivate the home market to the limit of his ability, prices will be stabilized. War time prices cannot be expected to continue, neither should prices drop to the low levels of recent years.

You Can if You Will

By F. Eric Millen

OF all the beekeepers in this country there are relatively few who are securing a maximum crop of honey each year. In some cases ignorance is the cause, in other cases neglect, and the majority of beekeepers would probably have to be classed with the neglectful, because ignorance is, usually, the twin brother of neglect. There are no excuses for any of us keeping bees these days unless we have the requisite knowledge with which to run them profitably. Beekeepers can secure, without cost, sufficient information from Government and State Bulletins which will enable them to learn the fundamentals of beekeeping practice. However, we usually find those beekeepers who are interested sufficiently to secure beekeeping bulletins also realize that a few dollars invested in other good beekeeping literature is a good investment.

Why is it that we do not produce larger crops of honey? I believe the answer is that we lack the interest and have too little ambition. Why do we lack interest and ambition? Because in so many cases our Creator and nature have been and are too kind to us. With little effort we can secure enough of this world's goods to live and we remain satisfied. Often it takes some serious happening to bring out the best part of our make-up.

In 1911 Mr. Harvey E. Nicholls, the subject of this article, an Iowa beekeeper, had the misfortune to lose both legs in a boiler explosion. Figure 1 shows us that our friend has lost the right leg near the thigh, but has the use of the left knee joint. This accident happened when Mr. Nicholls was 21 years of age, and many of us would probably have



A legless man who is a successful beekeeper.



A legless beekeeper who drives an automobile

given up the fight and have been content to live on charity. Not so, however, in this case; the loss of his legs gave him the impetus necessary to make life successful, and while before the accident Mr. Nicholls' ambitions were small, he soon realized that life was ahead and that he had to make good.

In 1915 he secured a swarm of bees and, although he secured no honey that year, the bees were carefully prepared and packed outside for winter. Early in the 1916 season a good book on beekeeping was purchased and this book was studied in conjunction with the manipulation of the colony. Frequent visits were also made to successful commercial beekeepers living in the vicinity, and much information was freely given from this source.

At the close of the season Mr. Nicholls had 80 pounds of honey surplus and had wisely refrained from making increase. Slow but sure. The single colony was again packed and wintered well. Nineteen seventeen opened and three more colonies were purchased and transferred from their old hives into standard 10-frame hives. Two 2-pound packages of bees were secured from the south and two other colonies were worked on half shares. During the season Mr. Nicholls worked for the Western Honey Producers, assembling beekeeping supplies and worked with the bees at odd times. The close of that season found our friend with twelve colonies and a crop of 400 pounds of honey. The twelve colonies were wintered successfully.

The twelve colonies, together with two more purchased, were moved five miles from town in the spring of 1918. Besides the aforementioned fourteen colonies, forty-five more were worked on shares, for half of the surplus honey only. Work at the supply factory was discontinued, except at odd times, and the bees received the required attention. A second-hand Ford was purchased, on time, and the apiary and town made easily accessible.

The fourteen colonies were increased to twenty, and the forty-five on shares increased to eighty-five, this being a part of the agreement when the bees were taken in hand. A man was hired for six days, during

the season, to help lift the heavy supers into the Ford and assist with other work in the apiary.

From May 1 to September 9, 1918, the returns from the bees, together with the odd work amounted to just over \$800. Just look at Fig. 1 again and then one can imagine under what apparent difficulties Mr. Nicholls worked. I say apparent, because our friend did not stop to say "I can't," or "impossible," but went ahead and made the undertaking a success. You can if you will.

Figure 2 shows how it is possible for Mr. Nicholls to move around from place to place as he so desires. An artificial leg fitted to his left limb enables him to drive his Ford just as easily and surely as any of us with two sound legs, and distance is no object to our friend.

Mr. Nicholls has not only made a good start to become a successful beekeeper, but at the age of 29 he is putting himself through high school, another very creditable feature. Although just making a start in life, our friend believes in tithing and gives 10 per cent of his earnings to charitable purposes, besides this last summer a sister and grandmother were partially supported.

When I secured this brief history I realized that some of our soldier boys home from the war, who might be partially disabled, may be interested in knowing what Mr. Nicholls has accomplished. We cannot all be beekeepers, but we can be useful citizens. To those of us who are beekeepers this article should certainly awaken the desire to succeed, and you can if you will.

Iowa State College, Ames, Ia.

Robbing

By C. P. Dadant

"They were in truth great rascals, and belonged to that class of people who find things before they are lost."—Grimm.

NO, bees are not great rascals, although they sometimes "find things before they are lost." But this is due to their great industry.

There is hardly a text-book published on beekeeping, at the present day, that does not have a chapter upon robbing and how to prevent it.

Nevertheless, the editor of a bee periodical often receives enquiries like the following, which is typical of the beginner:

"I have a neighbor who has a larger number of colonies than I have and his bees rob mine. What shall I do to prevent it? I tried moving the robbed colony to a new spot, but it does not seem to help matters."

We have known novices to become angry at their more successful neighbors because their bees were being robbed apparently by a joint action of more powerful colonies. Yet, as in the destruction of colonies by the moths, the fault is with the owner of the robbed bees. Here again, we have to repeat Oettl's Golden Rule: "Keep your colonies strong."

A weak colony is not necessarily in danger of robbing, if the number of combs which the bees have to guard is in proportion to the size of the swarm. If we have small colonies, made by the building up of nuclei, or the hiving of late swarms, we can protect them, or help them to protect themselves, by reducing the number of combs in proportion with the size of the colony and using a dummy to reduce the space.

It is good policy to strengthen such colonies, as early as convenient, with brood and bees from more powerful ones.

Let us say to the beginner, once for all, that it is a mistake to believe that the different colonies of a large apiary will unite to rob those of a smaller one. But after a colony of bees has lost its courage and has given up defending its stores, the bees of any other colony in the vicinity may join the robbers.

It is very important to avoid robbing, not only by reducing the combs of a weak colony to such space as they can easily defend, but also by having each colony supplied with a good queen. The entrances should not be too large, but only of such size as will readily accommodate the passage in and out of the workers.

Above all things, no honey or sweets should be exposed where they may entice bees to rob, in time of scarcity. Accidentally, a door may remain open in the bee house, or a case of honey may be forgotten where the bees have access to it. As soon as they find the desired sweet, unprotected, they set to work to remove it to the only safe place they know—their hive. The arrival of loaded bees, to the hive, is at once noticed; whether they have means of telling each other, or whether the odor of the plunder is sufficient. We incline to the first surmise. Bees can tell each other many things, as do the scouts of the swarm who have hunted for a new home. The alarm is soon given to the entire colony and the air becomes filled with hunting workers who are looking for the treasure. Any practical beekeeper can tell, at a glance, when his bees are finding unexpected wealth, as they fly about and hunt in every nook and corner where the least odor attracts them.

Can we blame them for this? It is their nature to carry home every-

thing which is undefended. After a little practice, even defended stores will draw them. Do they find that stolen sweets, like stolen kisses, are always sweeter? No, for when there is honey in the fields they are not attracted by stored sweets, and seem to prefer the nectar of the blossoms to anything else. Only the inveterate, shiny, aged robbers, who have carried on the practice for a number of days, will hesitate between nectar and strong-smelling honey in the combs.

How to prevent robbing? Never by removing the robbed colony to a new spot. It goes without saying that, when you remove a colony to a new spot, you lose its field bees. But you do not lose the robbers, who are here, there and everywhere, ready to enter any crack that will give them a passage. If the robbed colony is worth saving, a very good way is to exchange its location for that of the robbing colony, provided both belong to the same apiary. The robbing colony may be found easily by sprinkling a little flour over the robbers as they emerge from the robbed hive. The behavior of the robbers when their home is suddenly placed in the spot of plunder, is ludicrous. They are entirely routed, and when they go back to the old home spot, where they find the robbed colony, they defend it with as much alacrity as they employed in robbing it.

If the robbers do not belong to the owner of the robbed bees, the safest way is to close the robbed colony and remove it to the cellar, putting an empty hive in its place. The empty hive will serve the purpose of amusing the robbers who waste their time hunting through it. Otherwise, they would perhaps try to rob the next colony, especially if they are in great force.

It is a mistake to handle bees and open hives when robbers are about in any number. If you **must** do it, then reduce the entrance to a very small space, close the hive as soon as possible and throw fine grass loosely over the entrance. A bunch of grass, through which the bees of the hive must crawl to reach the open air, is soon filled with guards and any robber that comes near, in the hurried, guilty way so common to them, is soon apprehended and taught a lesson. This will do very well, where robbing has just begun.

If a colony is carried to the cellar to stop robbing, it is important not to have any robber bees in it, for as soon as it is returned to its stand those bees will begin their pillage again. So every robber ought to be liberated before the hive is removed. If it is not very strong in bees, a few young bees from a colony of pure Italian bees may be given it a day or so before it is brought back to the light again. These young bees, who have not been demoralized by the robbers, will usually act as guards when the hive is brought out again, and will do short work with the robbers, unless the latter present themselves in great numbers.

Take notice, that Italian bees usu-

ally defend themselves very much better against robbers than either black or hybrids. Being less excitable, they run about less, and watch more. That quality alone would make Italians worth while.

Is it necessary to call the attention of the novice to the similarity of action between the robber bees and the young bees who are taking their first flight out of their home? In both cases they fly about to reconnoiter or recognize the spot. A pious old monk of the past century, the Reverend Babaz, called this "making the sign of the cross" in front of the hive. In the case of robber bees, this action might have been likened to that of the Calabrian brigands, who, before the liberation of Italy, some 75 years ago, used to make the sign of the cross to protect themselves against the possible defensive action of the travelers whom they ransomed. The robber bees are heavy with honey, as they fly out of the plundered hive, while the young bees taking their first flight are not loaded, and disport themselves with good grace and peace.

A great incentive to robbing is found in disjointed hives. When top stories and covers have been pried open many times for apiary operation, they finally gape at the corners. This attracts idle bees in times of scarcity. A little clay mixed with water closes such gaps effectively for the time. Personally, we use telescoping covers to avoid this annoyance.

"An ounce of prevention is worth a ton of cure."

About Inspection

By Charles D. Blaker

I HAVE read with a great deal of interest the article entitled "Force of Education," appearing in the February issue of the American Bee Journal. I do not think that anyone will feel disposed to disagree with Mr. Pellett concerning the importance of the educational side of the work of the inspector of apiaries. And perhaps in some cases the inspector has been given more power than is altogether wise, but when he proposes to "make the office a purely educational one" I must dissent. I maintain that education, as important as it is, is not sufficient. Speaking of hog cholera in comparison with foulbrood he says, "that the owner's financial interest in the hogs should be sufficient to give the master his attention." However true that may be in the case of hog raisers we know that very often it is not true in the case of beekeepers. For instance how often we find a man with one or more colonies who is too busy with other matters to give his bees proper attention, and who would not clean up unless there was a law having teeth in it that compels him to do so. Within a mile of him there may be a beekeeper who has hundreds of colonies of bees. Should we not have a law that would protect the financial interests of a man who has invested hundreds of dollars in bees?

If the inspector is not to be "the sole judge as to whether or not disease is present" pray tell who is to be the judge? Who is the judge in the case of glanders in horses or tuberculosis in cattle if not the officers designated by the law? To say that "under such a law healthy colonies of bees may be destroyed with no protection for the beekeeper," is no more true than to say that healthy horses and cattle may be destroyed with no protection for the owners under the laws now prevailing for the control and suppression of diseases among horses and cattle.

The comparison of the apiary inspector to a policeman who "is only called when you have committed a crime or are suspected of malicious intent" is, I think, an unfortunate one. Also it implies that the rank and file of beekeepers are a rather ignorant lot of people. My experience leads me to believe that not one person out of a hundred holds any such view of the inspector when he appears at his place, and if the man is possessed of a little ordinary common sense he understands the situation when it is explained to him by the inspector. During the four years of my experience as inspector we have met with serious objection from less than one half of one per cent of the owners of all the apiaries examined in the State during that time, and only one of these objectors could be classed as among those who look upon the inspector as a "policeman," and this poor fellow was mentally deranged, having formerly been for a little while an inmate of an insane asylum.

Surely every one will agree with Mr. Pellett when he says, "What does it profit to burn up one man's bees and leave a similar condition across the fence untouched?" But the remedy for such a condition is to change the inspector, not the law. The question touches only on the incompetency of the inspector and has absolutely nothing to do as to what the law in the case should be. All officers are expected to perform their duty, but in case one fails we do not immediately begin to agitate to have all authority taken away from the office.

I am not inclined to disagree with what Mr. Pellett says in opposition to a quarantine law if he means a "quarantine against the sale of honey from infected areas." But Minnesota has a law that quarantines an infected apiary so that the owner can not "sell, barter or give away or remove to another location without the consent of the inspector any bees, honey or appurtenances from an apiary known to be infected with contagious disease, etc. My deputies have instructions to always give consent to the sale of the honey after notifying the owner to be careful not to allow it to be exposed where bees can get access to it. I could relate many instances where this section of the law which forbids the sale or removal of bees, hives, combs, etc., from an infected apiary without the consent of the inspector has been a very great help in the

control of the disease in this State, and I am very sure that the beekeepers of Minnesota would not agree for a moment to have this section or any other section of our law repealed.

When Mr. Pellett says, "The question has been discussed with many of the most successful inspectors and all have been disappointed in what they have been able to accomplish under these laws," does he mean to imply that "all these inspectors" believe that it is best to "make the office a purely educational one?" If this is the case, we ought to know it, and know the reasons why they do. If we are going to have a discussion regarding the laws necessary for the control of foulbrood let me suggest that it be along constructive lines rather than along destructive lines. It is very easy to tear down but not so easy to build again. I think we should go very slow in the wholesale condemnation of the present laws. Why not consider one thing at a time as for instance the quarantine law. Again conditions may so differ in the various states that what is a good law for one state might not be equally good for another. Let us go slow, fellow beekeepers, before we pull down what has taken so much work to construct.

Minneapolis, Minn.

The Other Side of the Question

A Reply to Mr. Blaker

MR. BLAKER has evidently overlooked the point of the article which he criticises. Had he read carefully the closing paragraph he would have noted that I do not propose to do away with the law which requires the proper attention to diseased colonies, but to leave the enforcement of the law in the hands of the officers whose business is law enforcement. The foulbrood laws were designed to protect the beekeeper, and to centralize too much authority in the hands of one man is to create a greater danger than is offered by disease. It should be the business of the inspector to locate disease and prescribe its treatment. It should be the business of others to enforce the law. The inspector should be an educational officer.

A recent number of the Western Honeybee made the statement that European foulbrood and **unwise inspection** had reduced the number of colonies in one California county nearly 50 per cent. The writer has heard it charged in some cases that healthy bees have been destroyed by the inspector. The law gave the beekeeper no protection in such a case. There are cases reported where bees were destroyed by an inspector to get them out of the way of somebody's range. Whether these things have happened or not, it is plain enough that they might easily happen under authority of present laws. There is no reason why the laws might not be so drawn as to give the beekeeper full protection in his property rights as well as from his neighbor's disease. I maintain that under the laws now on the books in several States it would be easily possible for a misguided inspector to ruin the beekeepers in his territory, and if reports are correct this very thing has happened in many cases. The beekeeper needs to be protected against an incompetent inspector as well as from disease.

FRANK C. PELLETT.

Use of the Hydrometer in Commercial Beekeeping

By Isaac Hopkins

AT your request, I am pleased to furnish you with some particulars of the use now made of the hydrometer in New Zealand beekeeping, and its advantages. In times past, and even at present in some countries, beekeepers have largely depended upon "rule of thumbs" methods for deciding important questions in connection with their business; purely guesswork, in which the results might or might not prove correct. Take, for instance, the tests I have seen advocated in a leading bee journal for deciding as to whether a sample of liquid honey is ripe or not. They were given in all sincerity and practiced by some in the absence of a more reliable method. One was to nearly fill a clear glass with the honey to be tested, leaving an inch or two of air space below the cover or stopper; turn the jar quickly upside down, and according to the rate at which the air bubble ascended; so the ripeness or otherwise of the honey was determined. Another plan, and this was advocated not long since in a bee journal by a not obscure beekeeper, was to test the honey for its viscosity or stickiness between the thumb and finger; if very adhesive it showed good condition, if otherwise its ripeness would be doubtful.

Now, it could never have occurred to these advocates that the temperature of the honey would make a big difference. On a cold day, the honey being denser than on a warm day, the air bubble would ascend much slower, and the viscosity would be greater, so that by either of these tests the same honey might be judged as ripe or unripe, according to the temperature of the honey when tested.

Then, again, in the making of honey vinegar, it is commonly recommended to test the strength of the liquid by putting an egg or sound potato in it; when the egg or potato floats showing a small disc above the surface it is strong enough; if they sink more honey must be added. The same test is advocated for honey mead, but as the strength of the liquid needs to be greater, a larger disc of the egg or potato must show. These tests are more or less guess work, as on the size of the disc the amount of honey in the liquid depends. The least variation in size of disc makes a big difference in the calculations.

Now, there need be no guess-work at all with regard to honey, vinegar

or mead; hydrometer tests will give absolute accuracy in each of them. Honey tests are the most important and here is where the hydrometer is of the greatest value. Some 30 years ago, when handling large quantities of honey from different sources, I received a great deal of it in liquid condition. In that state I could not judge accurately whether it was thoroughly ripe or not, nor can I to this day judge correctly liquid honey by its appearance. I may give a fair guess, but that is not enough. Several lots eventually fermented, most of it being the product of a family of very careful beekeepers who, I was confident, would take every care to avoid sending out doubtful honey. It may be said that if the honey had been all sealed before extracting there would have been no trouble, but I am not so certain of that. I have seen at different times the opinion of experienced beekeepers expressed that the sealing or capping of honey should not be implicitly relied upon always as an indication of thoroughly ripened honey. Be that as it may, I became fully satisfied at that time that some method within the capability of the average beekeeper to apply was needed to accurately test any given sample of honey without risk of mistake. It occurred to me that if the minimum specific gravity of the general run of honey produced in the country, would be discovered below which fermentation would take place sooner or later the object would be accomplished.

The opportunity for making a sufficient number of tests for the purpose of setting a standard did not occur till I joined the Department of Agriculture. In all I made some 250 tests between 1907 and 1912, experimenting with honey gathered in different seasons and from all sources. The result was I came to the conclusion that any of our honey of a specific gravity of 1.420 or over would not deteriorate under ordinary circumstances in any length of time. To test by time I put by samples of tested honey in glass jars (60 in all), some from each season from 1907 to 1913, when I resigned.

Last year (1918), when I saw them the honey was as good as ever. The minimum specific gravity of 1.420 is now officially accepted by the government honey graders, and the New Zealand Co-operative Honey Producers' Association, and no honey of a lower specific gravity is allowed to be exported or is accepted by the association.

In making honey vinegar, instead of the egg or potato tests for strength, the hydrometer should be used, and the same for honey wine-mead. The specific gravity of the liquid for vinegar of 1.040 contains $1\frac{1}{2}$ pounds of honey, and that for mead $1.115\frac{4}{5}$ pounds. The vinegar liquid of above specific gravity develops over 5 per cent acetic acid, quite a strong, fine-flavored article.

Commercial beekeeping has so far advanced that we should discontinue the "rule of thumb" methods and adopt more accurate scientific measures. It should be mentioned that

"Twaddell's" hydrometers are used, and the honey or other liquids should be as nearly as possible at a temperature of 60 degrees Fah., or 15 C. Auckland, New Zealand.

Bees and Grapes

There has been more or less friction between the beekeepers and grape growers for many years. In wet weather the grapes often crack open, and when this happens at a time that there is little nectar in the field, there is likely to be trouble. When natural honey sources are scarce, the bees will suck up almost any kind of sweet product. At such times they often swarm over the vineyards, sucking dry the fruits which have cracked open. It is a well-known fact that bees will not injure sound fruit, but the grower is usually inclined to hold the bees responsible for the entire injury, since their work is so apparent.

In Southern California raisins are grown in large areas and hundreds of acres of raisin grapes are grown for the trade. Rains are not usual at the time the fruit is being dried. The grapes are spread out in thin crates which are piled one above another in the open field. Now and again a light shower damages the fruit seriously. The photograph shows the result of such a wetting and the work of the bees afterward. All the juice had been extracted by the bees, only the empty skins and seeds remaining. While this fruit juice is stored by the bees as honey, it is of poor quality and of little value to the beekeeper.

The National

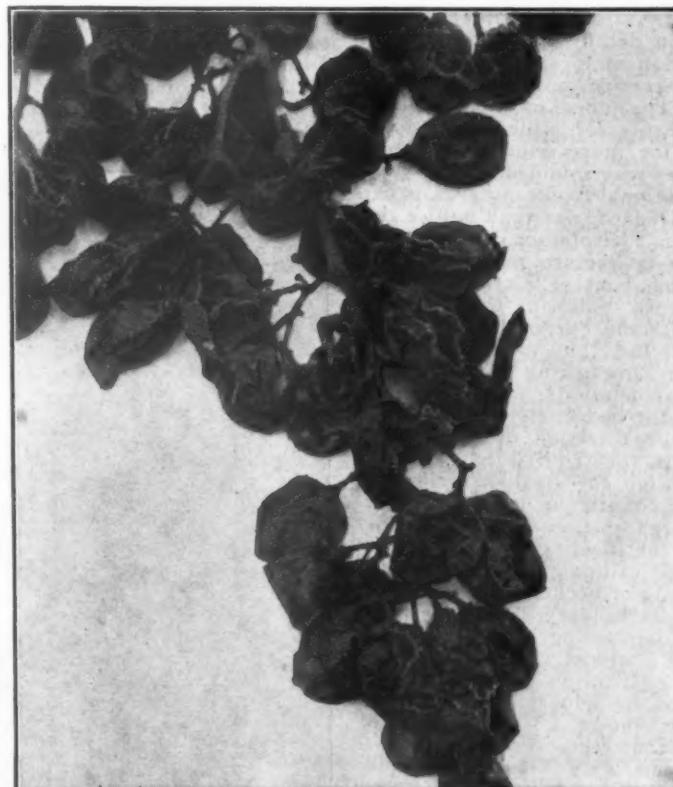
THE National Beekeepers' Association held its 49th annual convention in the East Room of the Hotel La Salle on Tuesday, Wednesday and Thursday, February 18, 19 and 20. This meeting immediately followed the Northwestern Association meeting which was very well attended.

The meeting was presided over by B. F. Kindig, in charge of apiculture at East Lansing, Mich., the president. David Running, being unable to attend on account of sickness.

The program was very interesting and kept the attention of the crowd which was in attendance. Professor Francis Jager gave a very interesting talk on "Beekeeping and the New Era," and also gave a very fine talk on European conditions.

Miss Iona Fowls, of Gleanings in Bee Culture, gave a very interesting and instructive talk on "Pushing to the Front in Beekeeping." This was followed by a paper given by Colin P. Campbell, president of the Michigan Affiliated Beekeepers' Association. His talk was for a stronger organization among beekeepers and the paper read by him later caused a resolution to be presented on this subject.

Dr. E. F. Phillips gave some very valuable information concerning the "Factors Influencing the Secretion of Nectar," although the doctor was unable to explain just why plants yielded honey on some occasions and did not on others when conditions were apparently the same. The convention had the pleasure of hearing Mr. W. H. Hall, connected with the Bureau of Markets, Chicago, Ill. Mr.



Raisin grapes that have cracked open after being wet. The juice has been sucked out by the bees.

Hall gave full information as to how the market reports were gathered and assured the beekeepers present that anyone who desired the reports could get them by simply writing to the Bureau of Markets at any of the cities in which such bureaus are located, or to the main office at Washington, D. C.

Prof. F. Eric Millen, in describing beekeeping as seen by a bee inspector, gave one an idea of the troubles and difficulties met by the bee inspector and showed very plainly that education is essential for the eradication of bee disease throughout the country. The fact that beekeepers are not acquainted with disease and means of its eradication is the prime cause for the spreading of foulbrood.

Perhaps none of the speakers attracted as much attention as Charles B. Justice, General Manager of the California Honey Producers' Co-operative Exchange. Although this organization has been in operation but a short while, there is great promise for what it will do for its members. Mr. Justice is an enthusiastic man and, without doubt, there is bound to be a steadyng of the honey market through the efforts of his organization.

Kenneth Hawkins gave a talk on "Beekeeping in Dixie." Mr. Hawkins was in the employ of the Federal Government for nearly three years and covered something like 21 states doing extension work for the Department at Washington. Although Mr. Hawkins is no longer connected with the department, he is still closely in touch with it and gave valuable information as to general beekeeping conditions in the south.

Professor H. F. Wilson, of the University of Wisconsin, talked to the meeting in detail, the way in which organization of local beekeepers' societies was accomplished in Wisconsin. Through him, as well as through Professor Millen and others, the call for more education among beekeepers was sounded.

"International Beekeeping," a paper by C. P. Dadant, was read before the Convention. Professor E. G. Baldwin gave a lecture on "Extension Beekeeping, Fact or Fiction?" Professor E. G. Baldwin, who is connected with the Purdue University at Lafayette, Ind., has met with great success in organizing county beekeepers' associations, and devoted as he is to the work, he feels certain that the organization of beekeepers throughout the United States must come through the small associations located in counties under the regular Federal organization.

During the meeting, the resolution was passed calling for a representative meeting of beekeepers at Kansas City, Mo., in January, 1920. The purpose of this meeting will be to reorganize the National, either by amending the Constitution or changing it, or perhaps by adopting an entirely new Constitution. The discussion during the meeting tended to show that the majority was dissatisfied with the present status of the National and wished to improve it. A minority report, however, was

brought in by two of the committee who felt that with the present machinery of the National, sufficient work could be accomplished if the right officers could be found to do the work. The motion, however, was carried, and the Secretary was instructed to call a meeting in Kansas City in January, 1920.

The best part of the National meeting came on the morning of the second day, when Doctor Miller appeared at the convention room door. To say that he was enthusiastically greeted is putting it too mildly. Dr. Miller and Miss Wilson were with us but a short time, but their presence rounded out the gathering as nothing else possibly could have done.

The officers elected for the ensuing year are as follows:

President—B. F. Kindig, Michigan.
Vice President—Miss Ada Sly, Michigan.

Secretary-Treasurer—Chas. B. Justice, California.

Executive Committee—David Running, E. S. Miller, Floyd Markham, Mrs. Cora Polhemus and Dr. A. C. Baxter.

L. C. DADANT.

Rendering Wax

By C. T. Ohlinger

OLD combs and pieces of wax that accumulate during the honey season, when honey is cut out of box-hives and bee-trees, can be rendered into marketable shape without extensive apparatus. The things necessary for a good job are two or three pails, preferably sap buckets that don't leak, a piece of burlap cut from a fertilizer or feed sack, a half dozen clothes pins and two floor boards, 3 inches wide and 3 feet long, hinged together at one end with a piece of leather, to be used as a press. If the boards have tongue and groove they must be shaved off



A home-made wax press.

so that no wax can run into them.

In order to get every bit of wax we scrape the walls of the hive and the frames with a sharp knife clean to the wood. The combs and scrapings are crushed into one of the pails until about half full. Rain water, or soft water, is now added, just enough so that the pail will not boil over when on the kitchen stove to boil. Frequent stirring helps to separate the cocoons from the cells of the comb and thus more wax is gained. We try to use as much water as possible in order to get a bright and clean wax.

When the combs are all dissolved and boiling hot, the piece of burlap is pinned over the second pail as a strainer, and the whole mass poured into this pail. The ends of the strainer are now gathered into one hand while another person slips the boards around the bag thus made, gradually pressing the contents while the bag is being twisted until no more wax can be squeezed out. The remaining slum-gum is carefully scraped from the strainer, which is now used for the next batch. When the weather is cool and the bees are not flying we set the pails containing the strained wax anywhere outdoors, at other times they go into the cellar until the wax can be removed from the pails.

Angelica, Allegheny, Co., N. Y.

Hive Size and Comb Capacity

By Arthur C. Miller

THE accuracy of Quinby's observations and the soundness of his deductions are, after nearly seventy years, slowly being recognized. His hive size and comb capacity are being adopted by a steadily increasing number of beekeepers. To be sure, some wise ones, like the Dadants, the late Captain Hetherington and some living New York State beekeepers have long used the Quinby hive, or its equivalent, the "Jumbo."

It is not necessary here to recite all the history of the teaching and practices of the manipulative school of beekeepers, like Heddon, Hutchinson, Doolittle and others who thought to force and crowd the bees into the supers by taking away and transposing hive-chambers or parts, or to force an increase in population by "spreading the brood." I recently heard one of the fairest minded and best posted beemen in the United States say that that manipulative school had done untold harm to the bee industry. The shallow Langstroth hive was urged particularly to force the bees to put their honey into the supers and the Danzenbaker was merely an exaggeration of the idea. In the train of such outfits followed all sorts of plans to increase and stimulate brood production. Feeding and feeders became a mania and a necessity. The preaching and practice of some who fed a little daily to stimulate a natural flow reminded one of the ancients who pushed in through the diminutive entrance of their hives a split alder stick with the pith removed. The contents of that tiny trough was thought suffi-

cient for a colony of hungry bees. Not so far different from the few ounces now sometimes advocated as daily food. This putting man's labor in the place of bees' labor may gratify the pride of some folks, but personally I prefer to let the bees work for me, and not me for them.

Mr. Quinby and his disciples believed in giving the bees sufficient room to rear, provision and house a goodly population, and while keeping an eye to the surplus yield, they believed in letting the bees store and keep a full larder. That well-stocked larder is one of the important factors in making and keeping the colony strong. That store of honey in the brood-nest acts on the colony as does the "governor" on a steam engine; it keeps the operation steady and uniform to meet the varying load.

One thing which engaged Mr. Quinby's earnest attention was the size of the hive brood-chamber. All writers of his and earlier days were widely at variance and he found it necessary to make his own observations and deductions. The size he settled on was approximately 18x15x11 inches inside, and his frames were 18x11 (fractions omitted) and spaced 1½ inches between centers. And this size is used by the Dadants, and the Jumbo frame is, for all practical purposes, the same.

Just now there is again a discussion of hive sizes, comb area, etc., and with the light which the investigations of Dr. Phillips and Mr. Demuth and their associates have shed on the internal conditions of the colony in winter, together with their discoveries on the heat-producing methods and digestive limitations, we have undisputable evidence on which to work. It should result in dissipating some of the erroneous opinions and prejudices we now hold.

To realize that there is a wide recognition of the need of large brood-nests we have but to look at the increasing use of Jumbo hives and the advocacy of two Langstroth chambers. But the latter practice has its disadvantages, for it gives too much comb area, and in the wrong direction, also it calls for much of that expense article "manipulation" and much increases the capital invested.

As to comb areas and capacities the following figures are instructive. Assuming a frame full of worker-comb the cell numbers of different sized frames are as follows:

An L has 6,700, 10—67,000, 20—134,000.

A Jumbo has 8,500, 10—85,000, 20—170,000.

But there is another point beside the number of cells, to-wit, the storage capacity (cubic inches) for food, and there is a great difference in this respect between combs spaced 1½ inches between centers and those spaced 1⅓ inches. When combs are used for brood they are the same thickness (seven-eighths of an inch) regardless of spacing, but when used for stores, thickness increases as spacing increases.

The following table gives a fair approximation of the storage capacity of combs.



An "L" spaced 1½ has 117 cubic inches.

An "L" spaced 1⅓ has 134 cubic inches.

A "Jumbo" spaced 1½ has 149 cubic inches.

A "Jumbo" spaced 1⅓ has 170 cubic inches.

It will be well to keep in mind all numbers (brood capacity) and cubic inches (storage capacity) when considering sizes, spacing and numbers of frames and whether you will use two stories, or single stories and wider hives.

And if you are going to experiment with wider hives let me make a few suggestions which may save you a lot of loss. Make your hives wide enough so you can keep outer combs one-quarter inch away from hive sides. When not so offset, the outer surfaces of the outer combs are rarely used for brood, and will hold but half, or less, of the normal amount of stores. In other words, one whole comb is sacrificed. A good general rule to determine hive width is to make the inside width **one inch** wider than the aggregate width of the frames to be used in it, measuring the frames when **new**. Soon after the bees occupy the new hive the frames begin to swell and later propolis is stuck in. Strips of wood one-quarter inch thick are nailed on

inside of one side opposite where edges of end bars come. That offsets comb from hive-side properly. Super springs, or similar springs, are used at opposite sides, and soon it will be found that the space on the side where springs are will be little if any more than one-quarter inch. Hundreds of hives so arranged have for years given entire satisfaction.

I realize that there is still held by many beekeepers an idea that thin combs operate to increase brood and force honey into supers. This is one of the evils inherited from the teaching of the manipulative school. You cannot **force** bees to do anything against their instincts, and even if their instinct is to put brood in shallow cells and honey in deep, remember that it takes lots of bees to raise lots of brood to gather a full crop. Quinby knew that, and the principles he laid down have stood the test of time. Coupled with the conditions of complete winter rest and maximum brood production in early spring, as enunciated by Dr. Phillips, we have what amounts to an almost new bee culture.

Say it this way: Big hives, big comb capacity, big winter rest, big colonies and big crops, and big bank accounts—if you know how to sell and all pull together.

Providence, R. I.

Sagging of Foundation

By J. E. Crane

IN regard to foundation sagging, we have no serious trouble when it is properly wired horizontally. We have used some ten to fifteen hundred sheets of light-brood foundation each year for the past four or five years.

One cause of the foundation comb sagging is insufficient ventilation or allowing the hive to stand in the hot sun. This will cause all kinds of comb to sag. Another is in placing the wires too low in the frame. Factory made and wired frames, as I have observed, are wired at about equal distances from top to bottom of frame. I took the matter up with one of our largest manufacturers some years ago, urging the desirability of placing the wires near the top of frames, but received little encouragement. I suppose they look better when wired away to the bottom. I visited an intelligent beekeeper last week in the northern part of our State who uses light section foundation in shallow extracting frames without wiring or sagging.

We used, I think, 1,000 frames of light brood foundation in Langstroth frames with three horizontal wires the past year in extracting supers, a pretty severe test, and they are as handsome a lot of combs as I care for. No, if one will place the wires at the top, or near the top, of the frame, where the strain comes, there need be little trouble with sagging. Of course, the wires should be drawn firmly into place.

We must aim at the trouble if we expect to hit it.

A fine, mild winter we are having, with snow enough so far to keep the ground covered most of the time.

Middlebury, Vt.

(This is plain, solid, common sense. In building their combs naturally, the bees finish the top rows before extending all the way to the bottom. But when full sheets of foundation are given them, they are apt to overload them before finishing the cells

that are near the top, although the entire load is carried by the upper 15 or 20 rows of cells. So the wires that help to carry the load should be placed as near the top as convenient. One wire near the bottom is sufficient to prevent the sheet from warping. It is also very useful to have the wire imbedded, and we know of nothing better to do this than the electric imbedder.—C. P. D.)

The Hearing Sense of Bees

By A. F. Bonney

IN almost—I may as well say all—advance in knowledge, we argue from what we know to what we do not know, and this discussion regarding the sense of hearing in the bee will apply; while some argue from what they do not know to an erroneous conclusion. However, that is a common error, and needs but be corrected.

Because man hears we infer that other animals do also. That the vertebrates do allows of no discussion, for they have well defined organs adapted to the purpose. In the vertebrated animals these organs are complicated in structure, having, in the higher forms of life, an external ear; a meatus or sound canal ending in a drum membrane, the tympanum; then a cavity containing three small bones called the anvil, hammer and stirrup; then there are the semi-lunar canal and the labyrinth, and finally the tube extending from the ear apparatus to the throat, the eustachian tube, and this is as essential to hearing as any of the other parts, for if it be clogged no air can pass from the ear to the throat cavity, and the hearing is impaired. In the insect family there is no connection between the mouth and the breathing apparatus, as insects breathe through small tubes called tracheae on either side of their body; hence we cannot argue from what we know about man's hearing apparatus to what we do not know about the bee; and further, we do not even know that there be any necessity that the bees hear. They have a

wonderfully developed sense of smell, and, I have reason to think, as keen a sense of feeling, and I am sometimes inclined to think that, as hearing depends on vibration of the air, there would be no such thing as sound if there was no ear to hear it.

Now feeling depends on vibration, both of the air, the conducting medium on which we stand, and the vibration of the nerves of the body, and it is possible that, the bee being as sensitive to such vibrations as to odor particles in the air, feeling takes the place of hearing. However, in "Animal Life," by Lindsay, I read that Dr. Sharp, of Cambridge, has described their (the ants) "stridulating," i. e., noise-producing organs, and Mr. Lindsay alludes to the sense of hearing in ants as "a fact." Other insects make noises, and it is theorized that they are for the purpose of attracting members of the opposite sex, but what I have said above may apply here.

We know that the bees have different "voices," as the contented "homing hum," the sharp "buzz" of anger or excitement, the sound the queen makes at certain times, and as there are notes pitched so high that the human ear cannot take cognizance of them, it may be that the bees produce other sounds inaudible to us.

Just recently a new sense has been discovered in the human, through the use of the flying machines—the "motion sense" of aviators, which enables them to maintain equilibrium without the aid of vision. I once knew a man who could balance himself on the two rear legs of a chair and read aloud from a newspaper. A thousand trials failed to enable me to balance myself even ten seconds. Try it.

I have caused a shotgun to be discharged within ten feet of a hive where the bees were numerous on the alighting board, but failed to detect in them any indication that they heard the sound, while a very slight tapping with finger nail on the hive would excite them. I have yelled myself hoarse, but the bees paid no attention to me.

In our present state of knowledge I assume that it is safe to say that we do not know whether bees hear or not, and it affords an interesting field for study and observation.

Buck Grove, Iowa.

Mating Queens Over Colonies

REFERRING to the article on page 57, February number, "Mating Queens Over Colonies," I wish to say that I have had as good success mating queens over colonies as with some of the other methods. It is possible that it was due to good luck and awkwardness, rather than to the method used.

As a beginner, I have produced some excellent queens by various methods, and when ready to place virgin or ripe queen-cell over a colony I paid no particular attention to putting up frames from the lower brood-chamber, but put up frames containing brood in every stage of development.

In choosing and preparing my hive



Home of Edwin Hutchinson, Avon, N. Y., paid for by 65 swarms of bees in four years. In addition, the bees bought some Liberty Bonds and furnished a living for two.

for mating purposes, I select a strong colony, having one or more section supers, in which the bees have commenced to work. On top of these I place a honey-board, on top of this I place what I call a "mating bottom," which is made in the following manner: Make a frame to fit the hive, dimensions of which are $1\frac{1}{4} \times \frac{7}{8}$ inch. On the bottom of this frame I tack a sheet of tin, covering three-fourths of the frame; bore two or three half-inch holes in the back end of the frame, and for the entrance tack a piece of tin bent at right angles below these holes for alighting board. Over this put your brood-chamber with the brood frames and virgin or ripe queen-cell, and in due time you will find a laying queen.

I have mated two queens in the same brood-chamber in this way and would also get the frames filled with honey, which was extracted, or could have made a new colony strong enough to winter well.

I would like to mention another experiment which I have tried. The idea is not original with me, but I have never seen it in print that I remember of. I have seen the time when I wanted to graft some queen-cells and had no royal jelly. I have used a mixture of water and honey, well mixed, used the same as royal jelly and had 876-10 per cent of the cells accepted and 85 per cent were finished and were as well developed queens as I ever saw.

I have been in the bee business since 1918, but have done nothing but try experiments, and try to do what the other fellow has done, and more.

L. A. Shawler,
West Union, Ill.

Treatment for Foulbrood

A western subscriber requests that we specify briefly the latest treatment advocated for American and European foulbrood. Briefly stated, for American foulbrood is to remove the bees from the infected hives, destroy all comb and remove all honey, and placing them in an entirely new and clean hive, as one would treat a new swarm. The essential operation in the treatment of this disease is to remove the bees entirely from all sources of the contagion. It is especially important that no honey from the diseased colony is allowed to reach the bees in healthy colonies. The old hive and frames may be used again if thoroughly cleaned before coming in contact with the bees.

With the European foulbrood it is not necessary to destroy the comb. The important thing, with the European foulbrood, is to have the colony strong and to check breeding operations for a period of time until the bees have had opportunity to remove the infected material. It is usually advisable to re-queen the colony with selected Italian stock from some well-known disease-resistant strain. To be successful in the treatment of the European foulbrood the colony must first be strong and the brood-rearing must be checked for a period sufficient to enable the bees to clean up.

DR. MILLER'S ANSWERS

Send Questions either to the office of the American Bee Journal or direct to
DR. C. C. MILLER, MARINGO, IL.

He does NOT answer bee-keeping questions by mail.

Average Yield, Per Colony

Would like to ask C. P. Dadant the following questions, to be answered through the American Bee Journal:

1. What has been your average yield of extracted honey per colony for the past 20 years, if these figures are available? If not the 20-year average, would like the 10-year average; and, if not too exacting, list the last 10 years by each year. My reason is to see by comparison with the weather of Illinois Bulletin issued by the Illinois Experiment Station just what season proved the best regarding rainfall.

2. Will a wet August and September, following a dry summer, with a liberal amount of rain the following spring and summer, produce a very good crop of white clover?

3. What conditions do produce the best crop of white clover?

ILLINOIS.

ANSWERS.—1. We have been rather lax in keeping accounts of our crops. We should make statistics. But business and the hurry of each day seem to prevent us from doing a thousand things that ought not to be neglected. The best I can do is to give a rough guess of our crops one year with another, and this I would place at about 40 pounds per colony.

Drought is the worst enemy we have. The coming summer is likely to prove unprofitable to bees on account of last summer's drought that killed nearly all the white clover about us.—C. P. D.

2. Very likely

2. A winter that will not kill out the plants, preferably one with a good blanket of snow, in northern localities, the ground having been well filled with moisture in the fall; then enough rain and warm weather for luxuriant growth up to the harvest; hot, sunshiny weather during the flow, with a tendency toward drought toward the middle of the flow. Other factors, such as electrical conditions, no doubt should be considered.

Wintering—Transferring—Flax

1. I have the 10-frame hive of Hoffman frame and I am thinking of putting a shallow super filled with leaves on top of this and winter them out of doors in a winter case. Do you think this would be all right?

2. I have one colony in an 8-frame hive in which the combs are crooked, and I am going to transfer them to a 10-frame hive. When would you think it would be the best time to transfer them, before swarming or after? Would the bees go into the new hive all right?

3. Is flax a honey-plant?

WISCONSIN.

ANSWERS.—1. Yes; but protection at sides and bottom would still be needed.

2. In fruit-bloom is a good time. There will be no trouble about the bees going into the new hive if it is set on the old stand.

3. I think it is, but not a very important one.

Cellar for Bees

1. I am planning on building a honey-house with bee cellars underneath, size 16x26 feet. Do you think that will winter 150 colonies?

2. Will dig into side of bank and will have cellar all below frost line; cement walls and floor, and want to ask if you would have ceiling made of cement or wood; some say wood will rot.

3. Would you put in ventilators, and if so, what kind?

Would appreciate any other information that you can give me on this subject.

Am planning on leaving an air space between ceiling of cellar and floor of honey-house and packing with cut straw.

NEW YORK.

ANSWERS.—1. Yes, you will need to pile them only four or five high to accommodate 150.

2. Cement will last longer than wood, although wood ought to last many years.

3. It doesn't matter such a great deal as to the kind of ventilator, whether of wood or metal; but it is important that the one to let in the air be low down, and that the one which carries out the air should be fairly high at the outside. If the ventilators be 6 inches in diameter they will probably be larger than will often be needed, but you can close up all you want to, and if the diameter be too little there is no way to enlarge it. If the earth is sandy and you leave an earth floor, little ventilation may be needed.

Frames—Queen Rearing

1. Can an apiarist make frames for his own use; for instance, the Hoffman frame?

2. Would young queen likely be mated from a drone of the same hive?

3. Would it be a good time to raise a queen in fruit blossom time?

4. How many cells would a colony of strong bees be able to handle? Could they finish them, or should they be given to another colony above an excluder, with queen below?

5. Should honey be extracted as soon as capped, or left a while to ripen?

6. Which bee has been known to work on red clover the most?

7. How many days will it take for a queen to hatch from a very young larva?

IOWA.

ANSWERS.—1. The frame is the one thing about the hive that needs most exact workmanship and special machinery, and without this last the most expert mechanic would hardly think of making his own frames.

2. Small chance for it if other bees are within a mile.

3. Hardly, as a rule too much cool and catchy weather.

4. I suppose it isn't so much a question of what they can do as what they will do. Some colonies will mature 50 or 100 cells, others 10. There would be no likelihoods of a greater number being finished by changing them to an upper story.

5. Generally it is considered ready to extract as soon as sealed, although leaving it longer on the hive will make it a little richer.

6. I don't know. Claims have been made that this one or that one excels; but none too much is known about it. Likely there's more difference in clover than in bees.

7. If you mean larva just out of the egg, about 12 days.

Marking Queens, Wintering, Etc.

1. Have you had any experience with, and what do you think of, the plan of painting the back of the queen to facilitate finding her, as described in the January number of the American Bee Journal, page 21?

2. Is the Demuth method of packing bees for outdoor wintering a success? Will you please tell us just how the frames are rigidly held on end so as not to topple over?

3. After a Demaree super has been given in case of a prolific queen, would it not be a good plan to again move the brood above after the lapse of a few weeks, in order to give the queen abundance of room?

In wintering bees on the summer stands do you think there is any advantage in placing another hive-body between the bottom-board and the brood-chamber? As I use the Demaree plan, I have plenty of hive-bodies that I could use in that way, either with or without the frames of drawn comb.

MICHIGAN.

ANSWERS.—1. I have had no experience in the matter, but have read a good deal about it, and have confidence that queens thus marked are much more easily spotted than queens not marked. There are two reasons for thus marking queens. One is that you may know the age of a queen. I don't need to mark a queen for that purpose, since my book tells me the age of a queen, and I can tell the age of a queen any time of the year without opening a hive, unless the queen has been superseded, and I can tell that by her whole wings. If I lived in Switzerland, however, I might think it worth while to mark queens for the sake of finding them more easily, for there they prefer black queens, and they are harder to find than Italians.

2. I have never tried it, as I cellar my bees, but from the testimony of others it seems quite a success. I don't know whether any means are used to keep the frames rigid, but should hardly suppose it necessary. I have sometimes set the hive on end, and there is no danger of the frames tooling over unless they are turned beyond the perpendicular.

3. It might be a good thing in some cases, but usually by the time a second shift would be made the queen has slackened in her laying so that she has enough room.

4. I think there would be advantage in it. With an entrance a little above the bottom-board there would be no danger of the entrance being blocked with dead bees, and there would be the advantage, probably an important one, that the cold wind could not so easily reach the cluster.

Re-Queening—Increase

I have about 25 colonies of bees, black and hybrids all in 8 and 10-frame Tri-State hives, and I want to Italianize them all this spring and make some increase by introducing queens and 1 or 2-pound packages, with three or four objects in view. First, to get Italian stock. Second, to have them strong when the white clover flow opens. Third, to control swarming, and to work with the object in view of getting rid of all unnecessary drone-comb in the future.

I had thought of following this plan (close to the Demaree plan): I will take one hive, to illustrate, a hive that is strong at time of apple blossom, or later as you would advise. I will take one frame of brood (or two, as you would advise) out of old hive, place it in a new hive, fill up with full sheets of foundation and place old hive on new hive on old stand, with queen-excluder between; leave till time to introduce packages and queen. Then move the old hive to a new location and from 24 to 48 hours (as you would advise), hunt out old queen and introduce the packages with queen into old hive by liberating in empty super with perforated cardboard on bottom, with small opening in center for them to enter brood-chamber below. How soon would it be safe to introduce a new queen in the new hive that was left on the old stand? Or should I not want to Italianize them, would they readily receive the old queen after being without her 24 to 48 hours; and would it be necessary to destroy all queen-cells in introducing by this plan.

ILLINOIS.

I'm not sure that I am competent to advise about a plan I am not acquainted with, but I'll try. You do not say whether you will leave the queen above or below the excluder at the time the excluder is given, but I suppose you will leave her below, and I wouldn't leave more than one brood with her; and unless the colony is very strong in fruit bloom you will do well to wait till the blooming of white clover. It will be well to wait 48 hours before introducing the new bees into the old hive on the new stand, and it will not be necessary to use the super and cardboard, for there will be only young bees in the hive, and the new bees and queen should be directly received. Still the extra precaution will do no harm. But in the other hive more precaution is needed. Either 24 or 48 hours after the old queen is removed the new bees with the new queen may be given, and your cardboard may

be used, although a newspaper will answer. Brush off all the bees from one or two frames of brood; put these in an upper story over the cardboard or paper and put the new bees and queen on these combs. After being absent 48 hours, the queen could be safely returned without killing cells.

Floors—Increase

1. Would concrete be all right for a honey-house floor? If not, why would you object to it?

2. What is your method of running a colony for comb-honey production.

3. What is the best method of artificial increase and yet secure a crop of honey.

4. Would Italians and Carniolans crossed be a good cross?

ONTARIO.

ANSWERS.—1. I don't know from experience, but I should suppose it would be all right.

2. To give even a brief answer to such a question would be beyond the scope of this department, but in my books you will find in detail just how I manage when running for comb honey.

3. "You cannot have your cake and eat it, too," and if you make increase you must count on a smaller honey crop, unless in a location where an exceptionally heavy crop comes late. However, you may make increase and get a reasonable crop, and perhaps you might like the Alexander plan. When a colony is very strong, put all but one brood in a second story, leaving one brood with the queen in the lower story, with an excluder between. Kill any queen-cells that may be present and fill all vacancies with frames of foundation. In 5 days, if you find queen-cells started in the upper story take it away and set it on a new stand, leaving it to raise its own queen. If the colony is not of good enough stock to breed from, then all cells should be killed at the end of 5 days and the upper story of brood left over the excluder 5 or 6 days longer. It should also be left 5 or 6 days longer if no cells are started. At the end of this time, that is, 10 or 11 days from the time of the first operation, the upper story should be set on a new stand, and 24 hours later a laying queen should be introduced, or else a virgin or a ripe cell.

4. Yes; but I should prefer pure Italians.

Increase

1. Last spring a second hive-body was put on a stand of bees. This spring they will be strong enough to divide. Is it preferable to introduce a new queen into one stand when they are divided, or to allow them to raise their own queen?

2. About what time should they be divided?

3. A swarm is to be transferred from a box-hive. Your statement in "Thousand Answers," page 258, edition of 1917, would indicate there would be no queen in the old box at time it was broken up three weeks after the swarm issued. Is this correct?

KANSAS.

ANSWERS.—1. You are assuming quite a bit when you say they will be strong enough to divide. You gave them a second hive body, and it is possible that both stories will be occupied in the spring, but more likely only one, and possibly that one may not be half full. At any rate, when you do divide there will be an important gain to give the queenless part a laying queen rather than to let it rear its own queen.

2. Wait until about the time colonies begin to swarm naturally in your locality, or until the opening of white clover, and not then until the colony is strong.

3. Oh, yes; there will be a young queen in the old hive, but you will pay no attention to that. If, upon uniting, the young queen is killed, it will be all right, and if the young queen kills the old one, that will likely be better still.

Royal Jelly—Foulbrood

1. From what is royal jelly made, and can it be made artificially?

2. Describe American foulbrood, also the dif-

ference between American and European foulbrood.

3. What is the most effective way to introduce queens?

4. What do you think of Mr. C. B. Banks-ton's queen mating nuclei? Do you think it is effective as the baby nuclei?

VIRGINIA.

ANSWERS.—1. The bees make it of honey and pollen, somewhat as a cow makes butter out of grass; but I don't think it can be made artificially.

2. The outstanding symptom of American is that when you thrust a toothpick into it and draw it out the dead matter will string out in a thread an inch or two long. In European the dead larva has a yellowish look.

3. Perhaps as good as any is the usual one of caging the queen in the hive in such a way that the bees will let her out of the cage in 3 or 4 days.

4. I do not recall just what it is, but I would expect that anything C. B. Bankston uses would be good.

Moving Short Distance

I have 26 colonies of bees which I desire to move a distance of about 50 yards to a shed which I have prepared for them. Now, I do not wish to do anything that will cause a very great loss of bees and thus work against my honey crop.

How and when can I move them with the least loss of bees?

Is it best to move them after a confinement of a few cold days, or had I better wait till nice, warm weather?

Will there be danger of their drifting very much?

I have owned bees ever since I was a little boy, but never had experience in moving any even a short distance.

KENTUCKY.

ANSWER.—Don't wait for warm weather, for the longer they have been flying the worse they will be about flying back to the old place. Put a board in front of each hive entrance after you put them on the new stands, and before you open the entrance of a hive pound good and hard on the hive, so as to get the bees to roaring. That will help to make them mark the entrance and the new location. There ought to be no great trouble about drifting. In spite of your precautions, some bees will likely return to the old location. To catch these let a hive containing combs with a little honey, or else empty combs, be set in the old location, and each day, as long as the bees keep returning, let the bees be brushed from the combs in front of any hives in the new location.

Packing for Winter

1. To winter bees out doors in central Indiana, how would it do to place hives on a platform in a row, covering them with tar paper cover all over except the entrance, and over the top place tin to shed the water?

2. Would you leave the hives as close together in the summer?

INDIANA.

ANSWERS.—1. To pack in that sort of wholesale way would be less expense and labor than to winter in smaller groups or singly, and this obvious fact could not fail to have been suggested to anyone studying the problem. The fact, however, that it has not generally been adopted is pretty clear proof that experienced practitioners do not consider it a very satisfactory way. One trouble is that the bees would be likely to enter wrong hives.

2. By no means. There would be too much mixing of bees from different hives.

Spacing Frames—Sweet Clover

1. Do the Dadants use the wire spacer at the bottom of their deep brood-frames? Are they necessary?

2. How could I fix my Hoffman frames so they would space $1\frac{1}{2}$ inches from center to center? Would you advise me to use the staple-spaced frames for $1\frac{1}{2}$ inch spacing?

3. Should I use something to keep the enamel cloth from touching the frames? What could I use?

4. Would two division-boards, one on each

side of the cluster, be sufficient protection in spring (I winter my bees in the cellar) in northern Michigan?

5. Are the unspaced frames very much in use?

6. If I use a screen bee-escape board on top of the super and raise the hive cover one inch for ventilation, would that be too much?

7. Could I get the Dadant or the unspaced frames and space them $1\frac{1}{4}$ inches from center to center with staples at top and bottom?

8. If I use a wooden barrel to make a honey extractor, will the wood affect the honey in any way?

9. Along the east shore of Lake Michigan, where I live, there is a steep bank about 200 to 300 feet high. Between this bank and the lake there is a narrow strip of land about 100 rods wide which is heavy clay ground where red clover and wild peas grow. Would sweet clover grow here, and would the bees go the distance of a mile to get the nectar?

MICHIGAN.

ANSWERS.—1. Yes, they use them, but they are not essential.

2. You can use staples or shingle nails.

3. When enamel-cloth is used it is supposed to rest directly upon the top-bars. I prefer to use no cloth, having a flat board cover directly over the top-bars, with a bee-space between.

4. In cellar you need no such protection.

5. I don't know; I think the majority are self-spacing.

6. If raised at one end, half an inch should be enough. If raised all around, a fourth to three-eighths should do.

7. I think so.

8. That depends on the kind of wood. In any case it would be well to have a coating of paraffin or wax.

9. Sweet clover should do well there, and the bees would think it no hardship to go a mile to visit it.

Surplus Pollen

When we look over the colonies in the spring we at times find combs nearly full of bee-bread, old and hardened. Would it not be better to take such combs out altogether and give new combs, as it seems to me the bees will not, or cannot, use the bee-bread plugged cells unless they spend much unnecessary labor?

WISCONSIN.

ANSWER.—Yes; in a bad case it is probably better to melt up the comb and start afresh. In some cases it is possible to jar the pollen out of the comb when it is thoroughly dried.

Moving Short Distance

I shall have to move one of my apiaries about a quarter of a mile after this season's clover flow. I do not like to move the whole apiary twice to do this job. How would it work to move the greater part of the apiary direct to the new location, leaving a few weak colonies to catch the bees that return, and then move these to another apiary?

OHIO.

ANSWER.—You could do that way, but I think I would prefer this way: remove all the colonies, and leave in the old place a hive containing empty combs. The returning bees would settle on these, when you could take them to the new location, shake off the bees in front of any colony or colonies you liked, and then take the combs back to the old place, repeating this until the bees gave up returning.

Transferring From House Wall

Will you please inform me the best and most sure way to capture a swarm of bees that is located in a house, the entrance being a crack where the porch roof joins the siding of the house? The people prohibit taking off any boards.

When is the best time to do this?

KANSAS.

ANSWER.—I'm afraid I can't help you much. It is barely possible that you might manage to inject carbolic acid or some other substance so offensive to the bees as to stampede them entirely, making queen and all rush out of the entrance, when you might stop the entrance and capture the bees. You might also capture a good part of the bees by attaching a bee-escape

to the entrance, say in fruit bloom or at the beginning of clover bloom, getting them to settle on a frame of brood or an empty brood-comb. This could be given to any colony you like, and the performance repeated about every 10 days.

Honey on a Virginia Island

I want to know about the location, sources of nectar and your advice in general. The place is Chincoteague Island, Accomac County, Virginia, situated on what is known as the eastern shore of Virginia, extreme northeast corner of the State, 5 miles from the mainland, you might say in the ocean. It is an island containing 7 square miles, with another adjoining containing about 4 square miles; both have lots of pine forest, some black gum, holly, oak, cedar, persimmon and a few locusts on my place. The 38th degree of latitude is just north of both islands. Blackberries and other berries that I do not know the names of; also an abundant growth of wild flowers that bloom in spring, summer and fall; also some fruit bloom. No clover or buckwheat grow wild, nor are they cultivated. No bees on the place, only bumblebees, as far as I know of. Only uncultivated plants, etc., for the bees.

What do you think of it for a back lot apiary? If it is good, and I should succeed, I would eventually cover the whole acreage with a few colonies placed elsewhere than at my home, and plant clover if I could get it to grow on so low an elevation—about 4 feet above the sea level on an average. Once in a while (about 5 to 7 years) the place is flooded with salt water from the ocean; only the highest points left out. Fortunately my place is one of them.

My idea is to start with about 4 colonies, using Jumbo 10-frame hives, and running for chunk honey, as the demand there is most favorable for that kind of honey. I will buy what extracted I have a market for.

I was told that it would be a good location for a queen breeder, for pure stock.

VIRGINIA.

ANSWER.—I don't know enough to say whether your prospective location is a good one for bees or not. I should be a little afraid that the pasturage is not of the best kind, but it may be better than I think. Your plans are all right if you only have the nectar. If you are counting on a continuance of some years, it might pay big to scatter widely seed of white and sweet clover. I don't know whether clover will grow for you, but should be very hopeful of sweet clover. Even if it should grow poorly at first, it might be increasingly successful in time, and it might be a good thing to apply to the U. S. Department of Agriculture for material to inoculate the seed or the soil. In one respect there is a possibility that you have struck a bonanza in one thing you have mentioned. If you become an expert at rearing queens you are all right for that business, even if you cannot get very good crops of honey, for if there are no bees on the island that you cannot control you are sure of pure mating, a thing that very few can boast of. Under the conditions mentioned you could guarantee absolutely pure mating, and that's perhaps half the battle in queen-rearing.

Virgins—Moisture—Old Combs

1. What kind of honey in flavor and color does the Scotch broom give. My bees are busy on it as long as it is in bloom, but there are only three or four bushes in my reach. One beeman, two miles away, near a fair patch, gave me a sample that he says his bees gathered from this Scotch broom. Very thick, wine or cherry color, a little strong in taste to me, but pleasant to others who tasted it.

2. In requeening, what is the proportion of satisfactory to unsatisfactory virgins?

3. In maintaining two queens, one above an excluder, has anyone ever introduced a queen to the upper story without waiting for one to be hatched?

4. I have the 10-frame dovetailed hives. One, upon examination this spring, had moisture dripping and the inner cover of the metal cover was swelled tight, and the other hives had nothing like this. The entrances were cut to 5 inches.

5. Do the brood-combs ever have to be thrown out, or how long are the bees able to use the same combs?

WASHINGTON.

ANSWERS.—1. I have never heard of this honey before, and perhaps it may be left for you to find out about it and tell the others.

2. Likely you mean what proportion of virgins become laying queens. I don't know; possibly three-fourths, although sometimes much less.

3. Yes.

4. Perhaps this hive was closed more tightly on top than the others.

5. I don't know that they ever become too old, if the combs are good and straight.

Pollen—Louisiana for Bees

1. When bees are gathering abundant pollen do they gather less nectar for their use?

2. Is Louisiana a good State for bees. I am here first year.

LOUISIANA.

ANSWERS.—1. When bees go afield they gather nectar in most cases without any pollen. They may gather both nectar and pollen, and for all I know they sometimes gather pollen without any nectar. A bee that carries a heavy load of pollen would hardly be expected to carry as much nectar as it would if it had no pollen. But it should not be forgotten that it is just as important to have pollen as nectar; and if a bee should never carry anything but pollen, it is doing its full share toward securing a honey-crop.

2. I think it is so considered.

Bees From Trees—Strong Swarms

1. Is there any way of smoking bees out of a bee-tree? How? When?

2. Is there any danger of not getting the queen?

3. Is there any way of attracting stray swarms?

NEW JERSEY

ANSWERS.—1. They can be gotten out by blowing enough strong smoke, or putting in enough carbolic acid or other substance offensive to the bees. If the object is merely to get the bees there could be no better time than in the spring, before much or any brood is present.

2. Unless all the bees are gotten out there is danger that the queen may be among the last.

3. In a number of cases I have had stray swarms occupy empty hives standing in or near the apiary.

Sorghum for Bee Feed

1. Do you think that real good quality, nice, clear, light colored sorghum molasses would answer as winter stores for bees, or if not, how would it do if mixed with sugar?

2. Is there any preference between the white and yellow varieties of sweet clover as honey-producing plants, as to growth of plant or yield of nectar?

ILLINOIS

ANSWERS.—1. I don't believe that it would be well to have even a very small quantity of molasses in the bees' winter food.

2. Yes; the white is preferred. Both are good.

Dead Brood—Requeening

1. When I took my bees from the cellar this spring I found one dead colony. I think starvation caused their death. On one frame I found a patch of dead brood about the size of the palm of my hand. This brood was sealed, but the caps were not sunken; the dead brood gave off no smell and was not the least bitropy. This colony was short of stores in the fall, so I fed them about 5 pounds of honey. When I put them in the cellar they had brood in all stages of development. What do you think caused the dead brood?

2. Would it have been better if I had removed the brood before putting in the cellar?

3. What do you think of introducing queens by smearing with honey, as advised by F. M. Baldwin on page 200 of the June, 1918, American Bee Journal?

4. Would the first part of July be a good time to requeen? We have a good fall flow here.

MINNESOTA.

ANSWERS.—1. The brood probably did not die till the bees died, and then it chilled to death.

2. There was probably some wrong condition

that made brood in the hive at time for culling, and taking out the brood would likely not have helped.

3. Some report entire success; but others are not so successful.

4. Yes.

Unpacking Goldens—Royal Jelly

1. When could I take four stands of bees out of a shed? When I bought them it was almost too late to pack them.

2. When is the correct time to unpack my bees?

3. Would you advise me to buy Golden Italians, or the leather colored?

4. Are the Goldens as good?

5. Would it be too early to divide before the white clover flow, about June 15?

6. Or would this check the honey-flow to a certain extent?

7. Do you get royal jelly out of queen-cells?

8. If so, what part? and can it be saved in a bottle?

9. Should I put any syrup or flour out for my bees now?

10. How do you feed inside the hive when packed?

11. How much honey should I expect from a colony that has never had much care, but is in a good hive with straight foundation?

12. I have eight stands, four well cared for and four that are not. How much honey should I expect and make an increase of eight colonies?

13. Will they make 800 pounds or more?

14. How would you advise me to sell this amount, in 2-lb. cans, 5-lb., or large cans, and ship it?

ANSWERS.—1 and 2. Unless there be danger of starvation or some other reason for disturbing them, it is better not to unpack until it is pretty warm, say toward the end of May. That is equivalent to saying that the bees in the shed should not be moved till then. If, however, you had taken them out before there was any flying to speak of, there would have been less trouble about bees going back to the shed when taken out of it.

INDIANA.

3 and 4. There are good and bad in each; but on the whole, I should prefer the leather-colored.

5. Yes, if you want the most honey; no, if you want the most bees. Yet in regions where the chief flow comes late, it might not be too early for either purpose.

6. If you divide at the beginning of the clover flow you will pretty surely get less clover honey than you would to leave the colony undivided.

7. You can, if you want it; but in the practice of some no jelly is needed to start cells. The bees will produce the jelly without your taking any out of queen-cells, if they need it.

8. The whole of the pap-like substance found in a queen-cell is royal jelly, and some report keeping it some time corked in a bottle.

9. Putting out syrup may be a good thing if the bees can get nothing from the flowers and you don't mind feeding neighboring bees; and it does no harm to put out some kind of meal if the bees get no natural pollen.

10. You can't without at least partly unpacking.

11. Anywhere from nothing to 200 pounds. But you're more likely to have nothing than 200 pounds.

12 and 13. I couldn't tell at all. The location, the season, the bees, and other things have much to do with it. Then that "well cared for" is a varying quantity, depending on whether it is the care of a beginner or an expert. To double the number of colonies and get 800 pounds of honey from eight colonies could hardly be expected. To get 300 pounds would be doing well.

14. Likely you will do better to sell near home. Size of container depends on market; likely the 5-pound size may be best.

dissatisfied women. 'Tis true most of us do embroidery work, lace making, or something of this nature, but I do believe we should have something to take us out of doors, giving us fresh air, nature study and make us forget ourselves.

To me beekeeping is the most fascinating work I ever studied, and as I said, we should have a hobby, why not have one that gives financial returns as well as pleasure. Now, for the new beginner, don't try too many colonies, and remember there are three important things to be remembered, viz., neatness, self-control and patience. Don't forget this last word, patience, for bees do not approve of this hurry habit so many of us have fallen into. Neither do they approve of slovenly, dirty ways, and if we are neat and patient we must have self-control; having these three things in mind, get a few colonies of bees in good hives, a good, practical book on beekeeping, and, if possible, get some beekeeper to help you get started, for reading books alone is not so helpful as working with some beekeeper.

Some woman says, "I can't think of being stung." There are worse stings than bee-stings, and with the use of gloves and veil, bloomers or coverall suit, stings become a small factor in beekeeping. One can get hives complete, but I believe most women will enjoy the making of hives, especially the inside fixtures. I enjoy all the work except the painting.

One thing in particular I wish to mention, don't forget to use full sheets of foundation in hive-body; in fact, prepare your whole hive the best way possible.

One must not expect everything to be lovely, for beekeeping has its ups and downs, as well as any other vocation one might engage in.

Perhaps the heavy lifting is one of the greatest drawbacks for a woman beekeeper, but generally there is some one around who can assist in the lifting. I think for the woman who finds help scarce comb honey is the most profitable for her to handle. Then, too, there is something fascinating about preparing comb honey for market, and I do not see anything fascinating in turning an extractor, but this can be decided by each individual.

Now for the financial side of beekeeping. I have in mind several women who keep bees as a side line for their own money. All of these women have families to care for and help with other outdoor work. One single woman handles 70 colonies successfully and does most of the farm work alone, her father dying a year ago this winter.

I believe the woman that takes up beekeeping as her hobby or for her self-support, will at the end of the year find herself better, physically, and mentally, and a better companion for her fellow men than the little indoor woman.

MRS. ROY BUNGER,
Eskridge, Kans.

(Not every woman would agree that it is better to produce comb rather than extracted honey. To be sure

BEE-KEEPING FOR WOMEN

Conducted by MISS EMMA M. WILSON, Marengo, Ill.

Starting With Bees

My Dear Miss Wilson:

I am also a woman and anxious to succeed with bees, although I know nothing about them.

Will you kindly tell me how I can best make a small start, where to obtain information, what month is the best to start in, etc.

We recently moved to this place and there are some hives and a stand in the yard. The last lot of bees were killed by moths. How can I clean and fumigate the hives, etc.

MRS. HENRY B. MCVEIGH.
New Sharon, Iowa.

There is no better time to start with bees than in spring, say about the time fruit trees are in bloom. Then the risk of wintering is over. Better not start with more than two or three colonies, and then you can increase in numbers as you gain experience. Get Italian bees, or you can Italianize them afterward.

For information about bees you can take First Lessons in Beekeeping, a 175-page beginner's book, by C. P. Dadant, price \$1.00. If you want a larger work, you can get Langstroth on the Honey-bee, a full treatise on bee-keeping having 575 pages, revised by C. P. Dadant, price

\$1.50. A thousand answers to bee-keeping questions, by Dr. C. C. Miller, a book of 290 pages, supplements other books by answering questions not usually taken up. Price \$1.25. You can get any of these books at the office of the American Bee Journal, Hamilton, Ill. Sooner or later you will be likely to want a monthly bee journal, but be sure to have a book first.

If the old hives have been in complete control of the bee-moth, they have probably destroyed the comb, so that all you need do is to scrape out the remains and no fumigation is necessary.

Any further questions you may have will be cheerfully answered in this department.

Beekeeping for Women

Beekeeping for women can be divided into two parts; first a hobby, second a commercial industry. Every woman, though she be a busy housewife, should have a hobby or something to turn her mind to besides 365 days of cooking, washing dishes, doing the family washing, ironing and mending. For it has been proven that years of this kind of work has given us a crop of pale, nervous,

there is nothing very romantic about turning an extractor, but neither is scraping bee-glue off sections, with the sticky dust flying, anything so very enchanting. It must be confessed that when the finished crop is ready for market, the sections pre-

sent the finer appearance, but it takes more skill to produce them. After all, the deciding factor for each one depends upon which is the more profitable, and that each one must decide for herself.—Ed.)

MISCELLANEOUS NEWS ITEMS

Cure for Yellow Jackets

On page 98 of the March number of the American Bee Journal, under Dr. Miller's answers, I find some one from Washington asking about yellow jackets. Here is a **sure**, not too hard, **cure**.

Get, fresh from the butcher shop, a couple of pounds of beef liver (fresh meat) and cut into pieces two and one-half or three inches long by one inch thick. Work into this liver with a knife about one-quarter ounce of either arsenic or Paris green to the pieces. The latter, is best, and hang up out of the reach of cats and dogs, by a wire, somewhere around the apiary, or near the honey-house. The yellow jackets do the rest, and, as a rule here, do not bother for a couple of years; then another dose. It seems to clean out both the flying and embryo jackets, as they are meat eaters and will work for nearly a week on one baiting.

CHAS. F. SCHNACK,
Escondido, Calif.

Paste to Stick Labels to Tin or Glass

The following formula by W. C. Raymond, in Gleanings, will do it:

Half an ounce of silicate of soda (or, rather, common water glass), 1 ounce corn starch, 1½ pints of water. Add the starch and silicate of soda to the water and stir till uniform; then place the dish in another vessel of water and heat till the starch is gelatinous.

LEROY FLOYD,
Caywood, N. Y.

UNITED STATES DEPARTMENT OF AGRICULTURE

Bureau of Markets

Honey Arrivals Since Last Report

Medina O.: 2,180 pounds Michigan, 2,898 pounds Florida.

Shipping Point Information

San Francisco: Too few sales to establish market.

Los Angeles: Warm, clear. Supplies very light and practically all held by exchange. Demand slow; no sales reported.

Note: Arrivals include receipts during preceding two weeks. Prices represent current quotations.

Cincinnati: No carlot arrivals. Supplies heavy. Practically no demand or movement; no sales reported. Beeswax: Demand and movement moderate; market steady. Sales to jobbers—pure wax, dark to light, 40-44c per pound.

Kansas City: 1 Colorado and approximately 50 packages freight arrived. Supplies moderate. Demand slow, movement draggy. Sales to jobbers—Comb: 24-section flat cases, Colorado No. 1 light, \$7.25; Missouri, \$8.00-8.50. Extracted—Colorado, 60-lb. cans, 20-22c per pound. Beeswax: 35-40c per pound.

Chicago: No carlot arrivals, but liberal receipts from Illinois, Idaho, Colorado, California and Wisconsin in small lots. Demand and movement good for extracted; demand and movement slow for comb. Sales to Jobbers—Extracted: per pound, all sections, white 20-22c, light amber 19-21c. Comb: 24-section cases, Western No. 1, \$6.50-7.00; dark broken, \$4.50 up. Beeswax: Demand and movement moderate, light 45-50c; dark 40-43c per pound.

Cleveland: No demand. No jobbing sales.

Denver: Receipts very light. Demand and movement very slow. Sales to jobbers—Extracted: White, 19c per pound. Beeswax: Cash to producer: Light, 38c per pound.

Minneapolis: Supplies liberal. Demand and movement slow. Sales direct to retailers—Comb: Little change in prices; fancy western white, \$7.50-8.00 per case. Extracted: Prices lower. Western, 60-lb. cans, fancy, 20-23c per pound.

New York: Arrivals, 395 barrels West Indies, 1,140 cases Central America, 80 barrels South Pacific ports. Exported: 590 barrels, 445 cases to France; 500 cases to England, 2,680 cases to Sweden, 600 cases to Denmark. Demand slow, few sales to jobbers—Porto Rican and Cuban, \$1.85-2 per gallon. New York, per lb., buckwheat 12-16c, clover 18-20c. Beeswax: Arrivals, 200 bags, 79 seroons, 27 cases West Indies; 168 bags South America. Exported: 60 bags to Sweden. Demand and movement slow, market weaker. Per pound, dark 35-37c, light 38-39c.

Philadelphia: No receipts. Demand and movement very light, practically no movement; very few sales. Sales direct to retailers: Comb—California 30-32c per pound. New Yorks, \$5.50-6.00 per 24-section case.

St. Louis: Supplies light. Demand and movement slow. Sales to jobbers—very few sales. Southern Extracted, per pound in barrels, 18c; in cans, 20c. Comb: Practically no supplies on market. No sales reported. Beeswax: Prime 35c per pound.

St. Paul: Supplies liberal. Demand and movement slow; very few sales.

Sales direct to retailers: Comb—Western fancy white, \$7.50 per case. Extracted: Western, 60-lb. cans, fancy, 25-28c per pound.

Telescoping Covers

For some time I have made my own telescoping covers and under covers for my hives from store boxes. I get some pieces 2 inches wide by seven-eighths inch thick sawed out at the mill and cut them three-quarters of an inch longer than the width of hives. I cover them with three-eighths or half-inch lumber from the store boxes. Then I cover them with asphalt roofing, reaching down over the 2-inch sides of covers.

I give them a coat of asphalt paint every year or two in early spring and leave them out in the weather to dry



D. F. Rankin, painting double covers.

some time before I take my bees out of winter cases.

I find my combs never melt down under such covers and my bees are all without any other shade.

Enclosed is a picture taken when I was painting the covers.

D. F. RANKIN
Brownstown, Indiana.

A Missouri Association

On March 13 the Chariton County Beekeepers' Association was organized at Brunswick, Mo. The following were elected as officers:

President—W. L. Williams.

Vice President—Dr. W. D. West.

Secretary-Treasurer—H. E. Bartz.

Prolific Bees

Thirty-five years ago, when I was 17 years old, I secured a swarm of bees which were the gentlest and best honey-getters I ever saw. I made a hive of about eight frames, but about 30 inches long, three stories and a super. The first year I got about 300 pounds of the whitest and finest honey. After that from 30 to 100 pounds, with never a failure in the poorest seasons. They were larger than the largest Italians I ever saw,

very hairy and of a silvery-light color, glistening in the sun. My question is, what kind of bees were they? **SYLVESTER KALER,**
Arkansas City, Ark.

High Prices in Denmark

The honey harvest this year was nearly a failure most places in Denmark. The island of Bornholm was one of the best, here it was about average. I got 300 pounds less than last year, but the price was so high that the increase this year was more than last. The price was fixed by the government at 67 cents per pound, or 23 cents higher than in 1917. If there had been no fixed price it would have gone away in the wild, as the demand was very great. For wax we were offered \$2.50 per pound, but now the price is fixed at about 90 cents, which is too low, so no wax will be sold. Thank God the war is over.

ANNA SOMMER,
Lobbek Bornholm, Denmark.

Introducing Virgin Queens

Referring to page 17, January American Bee Journal, article written by Dr. Miller, "Care of Virgin Queens."

Having had much experience along this line for the past 18 years, I will give my plan of introducing week-old virgin queens taken from a nursery cage.

Take a cage same as used for shipping a pound package of bees, cage bees in these the exact amount in each cage desired to form the nucleus. Leave them caged from 10 to 14 hours or over night without food. Then sprinkle heavy next morning with sugar syrup; at the same time dip the virgin queen in syrup and let her loose in the package; turn the package first one way and then the other, mixing the bees all up. Don't be afraid you will hurt them; give them a good shake. Leave them for one hour, or, better still, if they are to be taken any distance to outyards, load into truck and take to locations where the nuclei have been prepared to receive them. Upon arriving, if they have cleaned themselves up pretty well, sprinkle again with syrup; then dump the whole bunch into the prepared nuclei, which should contain some empty combs, so they may have a place to store a portion of the syrup now in their honey-sacs.

There should be no brood in the nuclei, only empty combs. I remember once of introducing 450 old virgins in this way, and 14 days later caged 412 fine laying queens.

This is the most successful plan I have ever used, after trying many different ones the past years.

Should these week-old virgins be introduced to full colonies or old formed nuclei which have been queenless 3 or more days, I would cage all the old bees out of these that I thought they could spare over night, not to weaken them so as to lose their brood; leave these caged in same manner over night, and treat them as before, with syrup; loose the virgin from hatching cage, dip

her in syrup and run into the cage; then take these back to the colony from which they came; and the plan works better than any I have ever used. In other words, it's about the only way a virgin can be successfully introduced.

It seems as though the bees, after having been confined for so long without food and then sprinkled heavily with food, have so much to be thankful for that they gladly accept the virgin and never think of picking a scrap with her, and after remaining an hour or so with the bees in this manner she becomes one of the bunch, and they can better be united to their original colony.

WM. ATCHLEY, Ontario, Calif.

Temper in Bees

In 1916 I purchased a Cyprian queen. In 1917 I grafted 10 cell-cups from the Cyprian queen and got 7 laying queens. These were mated to the golden drones in my yard, and in temper were about like the average of the yard. That is, you really don't need a smoker.

Ten virgins just hatched were chosen for a mating experiment. They all looked alike and all were hatched within 4 hours from first to last. The excluder zinc was closed on all 10 entrances till on the fifth day. All drones were confined to their hives except those of the Cyprian queen. Then 5 excluders were opened, these 5 mated on or before evening of the ninth day; the excluders were now closed on these, a drone trap placed on hive of Cyprian queen. The other 5 excluders were opened and also the excluders from my colonies of Golden drones. One queen was lost, the other four were O. K. Results: These 4 queen bees were about like the average in the yard as to temper; the other 5 queen bees were alike, and if such were possible, were crosser than those of the Cyprian queen.

I now mated a virgin from my breeding queen to the drones of one of those queens crossed with Cyprian drones, and in temper these bees were equally as cross. We can't be too careful of our drones in mating queens. Some day the old theory will be shattered that the drone is not affected by the mating of the queen. If you wish to change the ways and temper of your bees look to your drones. My conditions here are ideal for such experiments. I had less than 1 per cent mated queens in 1918.

D. L. SWARTS,
Lancaster, Ohio.

Parthenogenesis

I am sending you a clipping containing an article by W. E. Joor, President of the Dallas County Beekeepers' Association, in which he says that the queen lays eggs in drone-cells that produce drones. Is this correct?

What I know about bees I have learned directly from the bees, and I have seen worker-bees lay eggs in drone-cells and I know that these hatched as drones. I have had this

to happen many times in queenless hives. So I have concluded that the worker-bees lay the drone eggs and the queen lays the eggs that hatch as workers or queens. Let me know whether I am right. **W. H. M.**

Texas.

Answer. You and Mr. Joor are both right. He is right in his assertion that the queen can and does lay drone eggs in drone cells and you are right in saying that workers—some of them, at least—can lay eggs that will hatch as drones.

The ability of the queen to lay both worker and drone eggs is similar to that of any other perfect female. But she has another ability which pertains only to a few insects, and that is to lay eggs which will hatch into living insects without having been fertilized at all. This peculiarity is called "parthenogenesis." It is as follows:

The queen has, alongside of the duct or canal through which the eggs pass, a small sac which is called the "spermatheca," and in which the fertilizing liquid from fertilization is kept. When the egg passes by that sac, if a slight pressure is exerted, the egg is fertilized and becomes a female, queen, or worker. If the pressure is not exerted, the egg passes without being fertilized, but it nevertheless hatches and produces a male or drone. The worker bees, never having been fertilized, may nevertheless lay some eggs, and these also hatch as drones. It is only in queenless colonies that you will find laying-workers, and whether their eggs are laid in drone cells or in worker cells, they invariably hatch as drones.

The same thing happens with a queen which has been confined to the hive during the first month or so of her life, so that she cannot mate. After that lapse of time she loses all desire to mate and begins to lay eggs. But as she has not been impregnated, all her eggs hatch as drones.

These are facts which have been proven over and over. You will find them mentioned in "The Hive and Honey Bee" revision, pages 55 to 62, or in shorter description in "First Lessons in Beekeeping," pages 3 and 4. In fact, almost any work on bees mentions this "parthenogenesis," which is a very interesting peculiarity of the honeybee.—C. P. D.

Spraying Again

I have just been reading the article in your journal in regard to prohibiting spraying while the trees are in bloom.

The writer seems to think that laws are not just what are needed. Why not require manufacturers of spray poisons to print the necessary information on the labels of poison containers? It will then be where it is needed at the right time, and the average person will pay more attention to it than to the same thing in a circular that he probably received two or three months before and had time to forget.

WM. C. KELSEY,
Orland, Ill.

Crop and Market Report

Compiled by M. G. Dadant

The winter loss has been extremely small, comparatively all over the country the past year, being as low as a fraction of 1 per cent, and only as high in extreme instances as 12 per cent.

Throughout the Eastern States, the South and the Central West, the losses have averaged from 2 to 3 per cent, with only an occasional reporter turning in 10 per cent.

It is surprising to note that the largest losses were in the States of Colorado and New Mexico, where the average was probably from 7 to 8 per cent, and many reporters stated that the losses were as high as 12 per cent.

There is also, in some instances, large loss reported in California, mostly due to insufficient stores in the fall. Other reporters in the same locality, whose bees had gone into winter with a quantity of stores, came through in excellent shape.

CONDITION OF COLONIES

In practically all of the East, Central West and Southeast, and more especially in Texas, colonies are coming through in excellent condition. They are, as a rule, very strong in bees and the only criticism is that they may be short of stores, this probably due more to their not having been given sufficient stores in the fall than to extreme use of stores during the winter.

CROP PROSPECTS

Very probably in all the East and Central West, prospects are not above average. Conditions seem to be especially favorable in the New England States and in sections of New York, Pennsylvania, and Ohio. The southern half of Illinois, Indiana and all of Missouri seem to be much below normal, while sections of Iowa report the clover burned out last summer, and no prospects ahead.

The northern half of Illinois seems to be better, as does the northern part of Iowa, and conditions in Michigan are very favorable.

In Wisconsin, the clover seems to have been burned out last year, and prospects are not especially flattering, although some reporters claim that good spring rains will bring a fair crop.

In Minnesota, and the Dakotas, the prospects are average, or possibly a little lower. Kansas and Nebraska have fair prospects. Sweet clover prospects in the Missouri valley are excellent.

In the whole Southeast, the prospects seem to be at least normal, and in Texas conditions are especially favorable. They state that they expect a better crop than for several years.

It is too early to give any indication of crop prospects in the inter-mountain States, although they seem to be about normal.

CLASSIFIED DEPARTMENT.

Advertisements in this department will be inserted at 15 cents per line, with no discounts of any kind. Notices here cannot be less than two lines. If wanted in this department, you must say so when ordering.

BEES AND QUEENS

"SHE SUITS ME" Italian queens, \$1.15 each from May 15 to October 15; 10 or more, \$1 each. Allen Latham, Norwichtown, Conn

CLOVER and heartsease honey, fine flavor, in new 60-lb. cans, at 28c. Edw. A. Winkler, Joliet, Ill.

FOR SALE—Apiary of 100 strong colonies equipped for extracted honey, fine location; 500 full-depth supers, 100 shallow supers, 120-acre homestead, relinquishment goes with the bees; everything new and in fine condition. If interested, write for complete list and price. J. B. Douglas, Box 1085, Tucson, Ariz.

FOR SALE—Hardy Italian queens, 1, \$1; 10, \$8. W. G. Lauver, Middletown, Pa., R. 3.

FOR SALE—Goldens, untested, 1, \$1.25; 6, \$6.50; 12, \$11.50. S. A. Tyler, Emden, Ill.

FOR SALE—1 2-lb. package of bees with a 3-banded Italian queen, for \$5. J. L. Leath, Corinth, Miss.

I. F. MILLER'S STRAIN Italian Queen Bees for sale. Now booking orders for early delivery. By return mail after June 15, or your money back. Northern bred, for business, from my best superior breeders; gentle, roll honey in, hardy, winter well, not inclined to swarm; leather color or 3-banded. Queens a specialty; 25 years' breeding experience. Safe arrival and satisfaction guaranteed. Untested, \$1; 6, \$5.50; 12, \$10. Select untested, \$1.25; 6, \$6.75; 12, \$12. I. F. Miller, Brookville, Pa., R. R. No. 2.

FOR SALE—One of the best queen breeders in the United States is now raising queens for us from selected stock of leather-colored Italians. We offer warranted queens at \$1 each, or \$90 per hundred. Tested queens \$2 each. Satisfaction and safe delivery guaranteed. Queens ready May 25. Order now, as our supply is limited.

The Foster Honey & Mercantile Co., Boulder, Colo.

THE EDSON APIARIES will have a surplus of A No. 1 laying Italian queens after May 1, leather colored or goldens; prices reasonable. Address Edson Aparies prior to June 1, Biggs, Calif. After June 1, West Butte, Calif.

QUEENS—Bees by the pound, 3-banded and golden. They are hustlers, gentle to handle, cap their honey white, are very resistant to European foulbrood. Booking orders now one-fourth down, balance at shipping time. See January "ad" for prices on bees by the pound. Quote nuclei f. o. b. here, 2-frame nuclei, \$4.50; 3-frame nuclei, \$6; 1-frame nuclei with 1 lb. extra bees, \$4.50; 1-frame nuclei with 2 lbs. extra bees, \$6; 2-frame nuclei with 1 lb. extra bees, \$6. No discount on nuclei. Select untested queens, \$1.50 each; 25 or more, \$1.35 each. Tested queens, \$2.50. Select tested, \$8. Free circular giving details. Nueces County Aparies, Calallen Texas. E. B. Ault, Prop.

FOR SALE—For spring delivery—Colonies of Italian bees fine strain, with tested queen, in 1-story 8-frame single-wall hives, full depth, self-spaced, Hoffman frames, nearly all wired, \$10 each. A few colonies in 10-frame hives, \$11 each; all free from disease; f. o. b. here. Wilmer Clarke, Earlville, Mad. Co., N. Y.

FOR SALE—150 colonies of bees in Iowa, mostly Italians. One 4 and two 2-frame extractors, storage tanks, empty hives and supplies, in good condition; will sell as one lot, or part. No disease. Reason for sale, leaving the State. F. Eric Millen,

State Apiarist, Ames, Iowa.

THREE-BANDED ITALIANS ONLY—Untested queens, 1, \$1.25; 6, \$6.50; 12, \$11.50; 50, \$40; 100, \$75. H. G. Dunn,

The Willows, San Jose, Calif.

GOLDENS that are true to name. Untested queens, 1, \$1.25; 6, \$6.50; 12, \$11.50; 50, \$40; 100, \$75. Garden City Apiaires, San Jose, Calif.

FOR SALE—Bright Italian queens, \$1 each; \$10 per doz. Ready April 1. Safe arrival guaranteed. T. J. Talley, R. 4, Greenville, Ala.

BEES AND QUEENS—When you can't get them from others you can from us. 1 lb. package, \$2; 2-lb. package, \$3.75. Queens, \$1 each, \$11 per doz. Good stock; no disease; order quick. Special prices on nuclei. Pelican Apiairy, New Orleans, La.

Head your colonies with Simmons' Famous Italian Queens. They took first premium at New York State Fair last September. Goldens or three-bands: 1, \$1.50; 6, \$7.50; 25, \$30. Orders booked now and filled in rotation. Also nucleus from same stock ready for June delivery. Allen R. Simmons, Fairmount Apiairy, Claverack, N. Y.

J. B. BROCKWELL'S Golden Queens, untested, May, June and July, \$2 each; six, \$7.50; doz., \$14; tested, \$4 each. Breeders, \$5 to \$20 each; 3-f. nuclei with tested queen, \$9. Barnets, Va.

GOLDENS—When you get tired being stung try one of these; tested, \$2; untested, \$1. Honeysuckle Apiaires, R. F. D. 1 Box 208, Fort Smith, Ark.

GOLDEN ITALIAN QUEENS—No better honey gatherers anywhere at any price. Untested, \$1; tested, \$2. Wallace R. Beaver, Lincoln, Ill.

FOR SALE—3-band Italian queens ready June 1. Untested, each \$1; twelve, \$10; 100, \$80. No disease here and satisfaction guaranteed. A. E. Crandall & Son, Berlin, Conn.

LEATHER and all dark colored Italian queens, when we have them, mated, \$1 each. These queens will include all that are not up to the standard in our goldens, but will be good utility stock. C. W. Phelps & Son, No. 3 Wilcox St., Binghamton, N. Y.

SWARTS GOLDEN QUEENS produce golden bees of the highest quality; satisfaction guaranteed. Mated, \$1, 6 for \$5; tested, \$2. D. L. Swarts, Lancaster, O., Rt. 2.

FOR SALE—3-band Italian queens from best honey-gathering strains obtainable. Untested queens, \$1.25 each; 6, \$6.50; 12, \$11. Satisfaction guaranteed. W. T. Perdue, Route No. 1, Fort Deposit, Ala.

PHELPS' GOLDEN ITALIAN QUEENS combine the qualities you desire. They are great honey gatherers, beautiful and gentle. Virgin, \$1; mated, \$2. C. W. Phelps & Son, 3 Wilcox St., Binghamton, N. Y.

QUEENS FOR SALE—Quirin's hardy northern bred Italians will please you. All our yards are wintered on summer stands. Tested and breeders ready any time weather permits mailing. Untested about June 1. Orders booked now. Testimonials and price list for asking. Have been a commercial queen-breeder for more than 25 years. H. G. Quirin, Bellevue, Ohio.

OUR BRIGHT ITALIAN QUEENS will be ready for shipment after April 15. Untested, 75c each; half doz., \$4.50, or \$8 per doz. Select untested, 90c each; half doz., \$5.50, or \$10 per doz. Tested, \$1.50 each. Safe arrival guaranteed. Tillery Bros., R. 5, Box 1D, Georgiana, Ala.

QUEENS—3-banded Italians, from best stock; untested queens in April, May and June, one, \$1; twelve for \$10. Tested, \$1.50 each; if you want as many as 50 queens, write for prices and discounts on early orders; no disease. Safe arrival and satisfaction guaranteed. O. D. Rivers, Route 4, Honey Grove, Texas.

QUEENS from one of Dr. Miller's breeders, tested, \$1.75 each, \$18 per doz; untested, \$1.25 each, \$13 per doz; 1 frame nucleus, \$3, 2 frames \$5, 3 frames \$6.50 each, without queens. We have never had any disease here. Safe arrival and satisfaction guaranteed. We have no package bees to offer, and no untested queens, except with nuclei. Delivery April 15. Geo. A. Hummer & Sons, Prairie Point, Miss.

WANTED—Bees in lots of 5 to 50 or more colonies. J. F. Coyle, Penfield, Ill.

FOR SALE—Leather-colored Italian queens, tested, to June 1, \$2; after \$1.50; untested, \$1; \$10 per dozen. A. W. Yates, 15 Chapman St., Hartford, Conn.

GOLDEN ITALIAN QUEENS and bees; honey-getters, prolific and gentle. Bees by the pound. Write for prices. J. W. Rice, Box 64, Fort Smith, Ark.

BEES AND QUEENS from my New Jersey apiary. J. H. M. Cook, 1 Atf 84 Cortland St., New York City.

FOR SALE—Pure 3-banded Italian queens, as good as you can buy with money, from June 1 to September 1. J. F. Diemer, Liberty, Mo.

BEES AND QUEENS—If the other other fellow has disappointed you by booking more orders than he could fill, let us know your needs at once; perhaps I may be able to help you out yet for this season. I am making a special rate on queens in quantities. George W. Brown, Lynnhurst Apiairy, Wilson, Wis.

FOR SALE

FOR SALE OR EXCHANGE—One Hatch wax press; also one Barnes foot-power saw. Frank Hoopes, East Downington, Penn.

FOR SALE—40 colonies of Italian bees in 8-frame factory hives, Hoffman frames. Price, \$8 per colony, f. o. b. here. D. G. Little, Hartley, Iowa.

FOR SALE—Bee hives, supers, sections, smokers, bee veils. Foundation and bee books illustrated. Catalog for stamp. J. J. Fitzgerald, Mitchell, S. D.

FOR SALE—Bees, 1-lb, \$2; 2-lbs, \$3.75; 3-lbs, \$5.50; 3-banded queens, untested, \$1.25; tested, \$2 each. Deliveries of pound packages from April 20 to May 20; queens until July 1. Elevation Apiaires, Milano, Texas.

FOR SALE—Clover and buckwheat honey in any style container (glass or tin). Let us quote you. The Deroy Taylor Co., Newark, N. Y.

FOR SALE—A limited number of bees and queens for May delivery from either home apiaires or South Carolina; safe delivery guaranteed if shipped by express. Parcels post shipments at buyer's risk. We invite correspondence as to details and price. The Deroy Taylor Co., Newark, N. Y.

HATCHING EGGS—Plymouth Rocks, all varieties; Anconas and Rouen ducks. Illustrated catalog 3c. Sheridan Poultry Yards, R. 18, Sheridan, Mich.

FOR SALE—Frame nailing device. You can make very satisfactory and simple device. Send 50c for drawings showing construction and operation for nailing Hoffman frames; use idea for nailing any style of frame. Clarence Aldrich, Santa Barbara, Calif.

FOR SALE—Cedar or pine dove-tailed hives; also full line of supplies, including Dadant's foundation. Write for catalog. A. E. Burdick, Sunnyside, Wash.

FOR SALE—40,000 pounds of No. 1 extracted clover honey and 35,000 pounds of aster honey; both of extra light color, heavy body and fine flavor, in 60-lb. cans. W. B. Wallin, Brooksville, Ky.

FOR SALE—25 10-frame hives, never been used, full sheets foundation. 30 lbs. foundation brood and surplus. 15 feeders.

70 10-frame queen excluders. 100 comb supers, 10-frame. 2500 sections, 4 1/4 x 4 1/4 x 1 1/2.

Five to six hundred extracting supers, with combs; no disease. E. Keister, Clarno, Wis.

FOR SALE—Silver Spangled Hamburg eggs and fine, rare old Paganini violin for sale. Elias Fox, Union Center, Wis.

FOR SALE—40 8-frame zinc and wood queen-excluders, 25c each; 10-frame wire excluders, new style, 50c each. D. G. Little, Hartley, Iowa.

FOR SALE—Due to my time being taken up with professional work this spring, I have more bees than I can take care of properly. If in the market for good colonies of bees, please address, J. F. Coyle, Penfield, Ill.

FOR SALE—"Superior" Foundation (Weed process). Quality and service unexcelled. Superior Honey Co., Ogden, Utah.

FOR SALE—Golden Italian queens of quality, 1, \$1.25; 6, \$6; 12, \$11. Satisfaction guaranteed. L. J. Pfeiffer, Route A, Los Gatos, Cal.

FOR SALE—Good second-hand empty comb-honey double-deck shipping cases for 4 1/4 x 1 1/2 sections, good condition, at 25 cents apiece, f. o. b. Cincinnati. C. H. W. Weber & Co., Cincinnati, O.

FOR SALE—Photos of L. L. Langstroth, inventor of movable-frame hives, size 7x9; price, \$1. American Bee Journal, Hamilton, Ill.

FOR SALE—5 10-frame hives drawn combs on foundation.

1 8-frame hive drawn combs on foundation. 2 10-frame hives with frames, foundation, wired, one empty.

14 10-frame supers, inside fixtures, except two. 3 8-frame supers, inside fixtures.

10 10-frame supers, 5 in each lot, inside fixtures, not unpacked. All in first-class condition. No disease.

P. H. Dunn, Akron, Iowa.

FOR SALE—Extracting outfit, 150 colonies bees, New Republic special truck, and location. Frank F. France, Platteville, Wis.

FOR SALE—8-frame Hive Parts.

149 Brood chambers, empty 75c each

99 Extracting supers, empty 45c each

154 Bottom boards 50c each

49 Metal-roofed covers 90c each

100 Wood-zinc queen excluders 30c each

36 Escape boards, with escapes 25c each

50 Wood and 7-wire honey-boards 60c each

27 Extracting supers 1/2 depth, with combs 1.75 each

38 Extracting supers, 1/2 depth, empty 35c each

10-Frame Hive Parts.

32 1/2 depth extracting supers, with combs \$1.80 each

23 Comb-honey supers, 7 to 10 foot sections 75c each

21 Excelsior covers 50c each

21 Bottom boards 40c each

21 Brood chambers, empty 60c each

21 Wood-zinc honey-boards 25c each

20 Old style 2-story extracting hives, empty \$1.00 each

W. C. Lyman, Downers Grove, Ill.

FOR SALE—Golden Italian queens which produce gentle, yellow bees, the hardest workers we have known, \$2.50 each. When you wish to improve your stock always buy the very best.

Wild Flower Apiaires, Southern Bldg., Little Rock, Ark.

FOR SALE—Friction feed, 20-inch planer; good as new. F. E. Gregory, 849 Ellis Ave., Ottumwa, Iowa.

SPECIAL SALE—1-story 8-frame dovetailed hives in flat, with telescope 7/8 wood covers, in packages of 5, at \$10 per package.

A. G. Woodward Co., Grand Rapids, Mich.

FOR SALE—75 Lewis 24-lb. shipping cases at \$8 per 25; 500 No. 1 Lewis sections, 4 1/4 x 4 1/4 x 1 1/2 beeway at \$4; one No. 15 extractor, \$20; 1 Dadant uncapping can, \$12; 10-oz. round screw-cap honey jars in 2-doz. reshipping cases, at \$1 per case; either plain or beeway 10-frame painted supers filled with sections and full sheets, at \$2 each; 8-frame at \$1.80; without sections, at \$1.10 and \$1; 1,000 fence separators at \$2.25 per 100; 2,000 slotted separators, \$1 per 100; plain or slotted holders, \$2 per 100; 100 division-boards at 5c each.

Edw. A. Winkler, Joliet, Ill.

FOR SALE—75 queen-mating hives, with half-size L. frames; part with combs and part with full sheets of foundation, and some empty frames. Will sell cheap. Write for photos and particulars. Have never had foul-brood.

D. G. Little, Hartley, Iowa.

SITUATIONS

WANTED—Man with some experience to work with bees coming season; state age, experience and wages; we furnish board. The Rocky Mountain Bee Co., Billings, Mont., Box 1819.

WANTED—For the season of 1919, one or more men to work with bees. State age, experience, wages, and give reference.

A. J. McCarty,
712 Coffman St., Longmont, Colo.

WANTED—One experienced man, and students or helpers in our large bee business; good chance to learn. Modern equipment and outfit, including auto truck; located near Summer resorts. Write, giving age, height, weight, experience, reference and wages wanted.

W. A. Latshaw Co., Clarion, Mich.

WHO wants to employ two energetic women anxious to learn beekeeping? Anywhere in northwest. One with some experience; can begin now.

Nell Nichol, Gooding, Idaho.

WANTED—Experienced man desires position in Apiary. A. W. Nations, Camp Point, Ill.

WANTED—Experienced, strong beeman; good wages. Students Bee & Honey Co., 1716 Rose St., Berkeley, Calif.

HONEY AND BEESWAX

FOR SALE—4 60-lb. cans choice extracted buckwheat honey, 1 60-lb. can clover and buckwheat mixed, 400 sections fine quality buckwheat honey, about 400 sections fine clover and about 200 sections clover and buckwheat mixed in $4\frac{1}{4} \times 1\frac{1}{4}$ sections. Will sell the whole lot at 19c or a part of it at 20c, f. o. b. here. Send cash with order.

Wilmer Clarke, Earlville, Mad. Co N. Y.

FOR SALE—Buckwheat honey in 120-lb. cases, at 17c per pound. C. B. Howard, Geneva, N. Y.

WANTED—Shipments of old comb and cappings for rendering. We pay the highest cash and trade prices, charging but 5c a pound for wax rendering. Fred W. Muth Co., 204 Walnut St., Cincinnati, Ohio.

FOR SALE—Clover, heartsease, No. 1 white comb, \$6 per case; fancy, \$6.50; extra fancy, \$7; 24 Danz. sections to case; extracted, 120-lb. cases. 25c per pound.

W. A. Latshaw Co., Carlisle, Ind.

FOR SALE—Michigan's best extracted honey in packages to suit. White clover, raspberry, milkweed, buckwheat.

A. G. Woodman, Grand Rapids, Mich.

WANTED—Comb, extracted honey and beeswax. R. A. Burnett & Co., 6412t 173 S. Water St., Chicago, Ill.

WANTED—Extracted honey, all kinds and grades, for export purposes. Any quantity. Please send samples and quotations.

M. Betancourt, 59 Pearl St., New York City.

MISCELLANEOUS

E. D. TOWNSEND, the present owner of the Domestic Beekeeper, bought beekeepers' supplies for the National Beekeepers' Association for several years. He is now buying for 1¹/₂ subscribers of the Domestic Beekeeper at the same low manufacturers' price. Listen now what he has got up his sleeve: Any American Bee Journal subscriber buying \$5 worth of supplies through the Domestic Beekeeper at catalog price, and sending along an extra dollar to pay for a year's subscription to the Domestic Beekeeper, will get in return a rebate check of \$1, leaving the year's subscription to the Domestic Beekeeper absolutely free to you. Of course, if your order for supplies is larger than \$5 you will have a correspondingly larger rebate check on your order. One of our subscribers got a rebate check on his order of supplies last month, March, of \$40. It was just like getting money from home to him, as he sent us the same money he would have had to pay if he had bought through the regular dealer in beekeeper supplies. More and more, close buyers of beekeepers' supplies are investigating the buying facilities of the Domestic Beekeeper. A word to the wise should be sufficient to cause you to send your next order for beekeeper supplies to the Domestic Beekeeper, Northstar, Michigan.

Used honey extractor; cash or exchange—typewriter, incubator, etc. L. Clark, Winona, Minn.

WE WANT every subscriber of the American Bee Journal to become a subscriber of the Domestic Beekeeper. Listen: A \$5 (or more) order of beekeepers' supplies at catalog price bought through the Domestic Beekeeper, Northstar, Mich., and a dollar extra for a year's subscription to the Domestic Beekeeper, will entitle you to a dollar rebate, leaving your subscription to the Domestic Beekeeper absolutely free. Could one ask more? This offer will give one an idea of what the Domestic Beekeeper is doing for its subscribers in the way of buying their supplies.

SONG—"The Plea of the Bee," or "The Honeybee Doing Its Bit." Sent to any address on receipt of 10 cents. The Cutting Publishing Co., 910 Merchants Bank Bldg., Indianapolis, Ind.

THE WAGNER CAPPING MELTER—No experiment, in use over 5 years, highly recommended by practical apiculturists all over the country; a perfect machine; separates honey from cappings and broken combs, while at the same time heats honey knives. Cheapest in price, cheapest to operate. Price only \$7.50, fully guaranteed.

A. F. Wagner,
Bonita, San Diego Co., Calif.

EXCHANGE—One 5-ft. Diamond mesh woven-wire fence machine; two 5-ft. stretchers for 8 strong colonies Italian bees, with queen; Standard 10-frame hives.

T. B. Moore, Randolph, Nebr.

HIGHEST PRICES paid for old, used postage and revenue stamps.

A. Arnold,
1482 Broadway, New York.

SUPPLIES

BEEKEEPERS OF THE NORTHWEST—Save by ordering your supplies near home. Standard goods; Factory prices.

Geo. F. Webster, Sioux Falls, S. Dak.

WANTED—Used hives and supers, foundation mills, extractors, bees and bee equipment. State lowest cash price wanted.

W. A. Latshaw Co., Carlisle, Ind.

ALWAYS the best place to get your supplies is at the same old place of H. S. Duby & Son, St. Anne, Ill. No one can beat us on price. Free price list.

WANTED

WANTED—July, 1916, June, July and December, 1917, and January and March, 1918 numbers of the American Bee Journal; will pay 10 cents per copy. Please wrap so that the whole Journal is protected.

American Bee Journal, Hamilton, Ill.

WANTED—Bees by the pound or colony, early shipment.

Specialty Farm,

Rockford, Minn.

WANTED—Your old combs, cappings or slum-gum to render into beeswax by our high steam pressure wax presses.

Dadant & Sons, Hamilton, Ill.

WANTED—Your order for "Superior" Foundation. Prompt shipments at right prices.

Superior Honey Co., Ogden, Utah.

WANTED—Farm, from owner, suitable for bees, poultry, fruit; give price.

Mr. Culver, Box 36, Grand Forks, N. Dak.

WANTED—Second-hand extractor in good shape, also steam uncapping knife. Give description and price in first letter.

Otto Diestel, Elza, Ga.

WANTED—A second-hand 2-frame honey extractor and steam uncapping knife. Give full description and lowest price in first letter.

J. J. Fitzgerald, Mitchell, S. D.

WANTED—50 to 100 full sheets of brood foundation. State lowest price in first letter.

Grover Abbey,

Rt. 2, Columbia Cross Roads, Pa.

Basket Picnic and Meeting

There will be a meeting of the Logan County, Illinois, Home Bureau, at the home of Mr. S. G. Tyler, Emden, Ill., June 3. Dr. Baxter, of Springfield, will be present and demonstrations will be given of the substitution of honey for sugar in baking. There will also be a demonstration of the best packing of comb and extracted honey. Trains will be met at St. Jose and Harness. For particulars, write to Mr. S. G. Tyler, Emden.

Western New Yorkers to Meet

The Western New York Honey Producers' Association will hold a spring meeting and basket picnic on Saturday, May 31, 1919, at the apiary of Emil W. Gutekunst, Colden, N. Y. Seasonable topics will be discussed by prominent speakers, including crop and market prospects. John N. Demuth, Secretary and Manager of the New York Honey Producers' Cooperative Association, Inc., will explain the work undertaken by that association.

HOWARD M. MYERS, Sec'y.

Golden Italian Queens

RUSTBURG, VA., R. No. 3, March 18, 1918.

Mr. Ben G. Davis:

Dear Sir—Please find enclosed \$5, for which please send me the very best Golden Queen you can for the money. If you can't ship her at once, please notify me. I ordered one from you 3 years ago last fall that was the best I ever saw. Her bees stored 320 pounds of comb honey the first year. I have several of her daughters that are fine.

Hoping to get a good one again, I am yours truly,

J. W. LAWRENCE.

PRICES OF QUEENS

	Nov. 1st to June 1st			June 1st to July 1st			July 1st to Nov. 1st		
	1	6	12	1	6	12	1	6	12
Untested	\$2.00	\$8.50	\$15.00	\$1.50	\$7.50	\$13.50	\$1.25	\$6.50	\$11.50
Select Untested	2.25	9.50	18.00	1.75	9.00	16.00	1.50	7.50	13.50
Tested	3.00	16.50	30.00	2.50	12.00	22.00	2.00	10.50	18.50
Select Tested	3.50	19.50	35.00	3.00	16.50	30.00	2.75	15.00	27.00

Safe arrival, purity of mating and satisfaction guaranteed

No Nuclei or Bees by Pound

Queens for export will be carefully packed in long distance cages, but safe delivery not guaranteed.

BEN G. DAVIS : : Spring Hill, Tenn.

Statement of the Ownership, Management, Circulation, Etc., required by the Act of Congress of August 24, 1912, of American Bee Journal, published monthly at Hamilton, Illinois, for April, 1919:

STATE OF ILLINOIS, ss.
COUNTY OF HANCOCK.

Before me, a Notary Public, in and for the State and County aforesaid, personally appeared V. M. Dadant, who having been duly sworn according to law, deposes and says that she is the Business Manager of the American Bee Journal, and that the following is, to the best of her knowledge and belief, a true statement of the ownership, management, etc., of the aforesaid publication for the date shown in the above caption, required by the Act of August 24, 1912, embodied in Section 443, Postal Laws and Regulations, printed on the reverse side of this form, to-wit:

1. That the names and addresses of the publisher, editor, associate editor, managing editor and business managers are:
Publisher, American Bee Journal, Hamilton, Ill.
Editor, C. P. Dadant, Hamilton, Ill.
Associate Editor, Frank C. Pellett, Hamilton, Ill.
Managing Editor, M. G. Dadant, Hamilton, Ill.
Business Manager, V. M. Dadant, Hamilton, Ill.

2. That the owners are:
C. P. Dadant, Hamilton, Ill.
H. C. Dadant, Hamilton, Ill.
V. M. Dadant, Hamilton, Ill.
Leon Saugier, Hamilton, Ill.
L. C. Dadant, Hamilton, Ill.
M. G. Dadant, Hamilton, Ill.
Jos. Saugier, Hamilton, Ill.

That the known bondholders, mortgagees and other security holders owning or holding 1 per cent or more of the total amount of bonds, mortgages or other securities, are:
None.

(Signed) VALENTINE DADANT.
Sworn to and subscribed before me this 16th day of April, 1919.

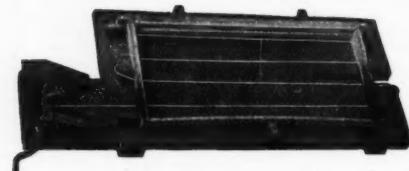
R. R. WALLACE Notary Public.
My commission expires September 21, 1921.

BEE SUPPLIES

Let Us Figure With You

Get our discounts before buying.
Largest stock in South West.

C. C. CLEMONS BEE SUPPLY COMPANY
142 Grand Ave., Kansas City, Mo.



PATENTED

Wright's Frame-Wiring Device

Most rapid in use. Save cost of machine in one day. Tighter wires, no kinks, no sore hands.

G. B. LEWIS CO. Watertown Wis.

A BOOK FOR BEGINNERS

"First Lessons in Beekeeping," written by the editor of this magazine, is intended primarily for the use of beginners in beekeeping. You should have it. Price, postpaid, \$1, or clubbed with the American Bee Journal, one year for \$1.75.

American Bee Journal, Hamilton, Ill.

LET US HELP YOU SOLVE YOUR BEEKEEPING PROBLEMS

HONEY PRODUCERS' SERVICE

Every ambitious beekeeper should learn of our co-operative plan to help him solve his financial, supply, producing and selling problems.

CASH ADVANCE ON YOUR CROP

Being among the largest producers of honey in the West, we can assist you. You can be accommodated with an advance on your crop on a contract plan, whereby you receive the market price, less our commission.

CASH SELLING AND MONEY SAVING

Remember us when you are ready to sell your honey. We will buy it at your station and pay you as much or more than you can secure elsewhere. We will buy your wax at top prices and save you money on your supplies. Our stock of supplies is ample.

GIVE YOUR BEES A CHANCE

It is not fair to limit the bees with insufficient super room when the flow is on. Don't take a chance of being caught without supplies at the critical time. We can furnish warranted queens at \$90 per hundred.

THE FOSTER HONEY & MERC. CO.

Wesley Foster, Pres.

Boulder, Col.

DIXIE BEEKEEPER

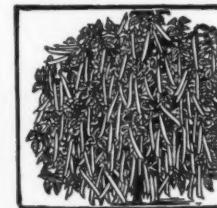
The first edition of this paper is now out and we are ready for subscriptions or to mail out sample copies. It covers the entire Dixieland with 32 pages of the most instructive matter pertaining to beekeeping.

THE SUBSCRIPTION IS ONE DOLLAR PER YEAR

DIXIE BEEKEEPER, Waycross, Ga.

TYPEWRITER SENSATION

\$3 or \$4 monthly buys a Beautifully Reconstructed Latest Model Visible Typewriter with back-spacer, decimal tabulator, two-color ribbon, etc. Every late style feature and modern operating convenience. Perfect appearance, perfect action and absolute dependability. Sent anywhere on approval. Catalog and special price FREE. **HARRY A. SMITH (314), 218 North Wells Street, Chicago, Ill.**



1200 TO 1 BEAN.

A Gigantic Wonder—over 200 pods have been grown on a single plant—all well filled, producing over 1200 beans from 1 bean planted. Plants grow strong and erect, branching out in all directions, bearing pods up well from the ground, which literally load the plants; beans being pure white and of best quality.

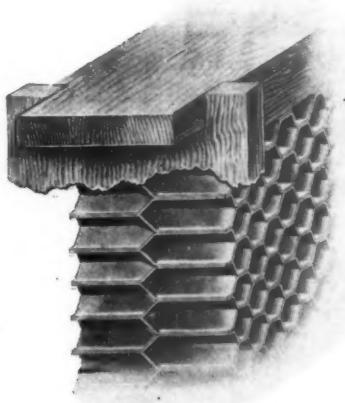
Plant in your garden or any good soil, after danger of frost, any time up to June 15 only 1 Bean in a hill, and it will mature a crop in about 80 days, ripening very evenly, and the growth and yield will simply surprise you. My supply is limited and I can offer only in sealed packets, each containing over 80 Beans with growing directions. Order early to be sure of them.

Sealed packets 10¢ each; 3 pkts. 25¢; 7 pkts. 50¢; 15 pkts. \$1 postpaid. My New Seed Book is filled with High Grade Garden Seeds at lowest prices. It's mailed free. **F. B. MILLS, Seed Grower, Dept. 41, ROSE HILL, N.Y.**

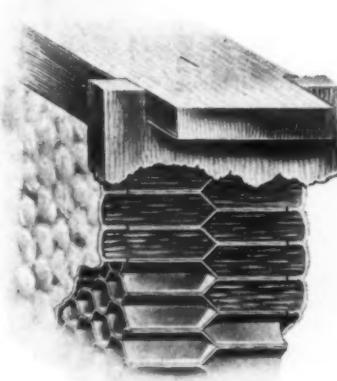
One of the Leading Bee Authorities of the United States is of the opinion that

The Aluminum Honeycomb

Is "The Greatest Single Appliance for Beekeeping that has been invented since the Extractor and Bee Comb Foundation"



A Cross-section of Brood and Honey Aluminum Comb showing the size and shape of its cells.



The Aluminum Honey Comb is uncapped the same as a wax comb. Note in the above cut how bees build on a wax capping, which makes it easily uncapped with an uncapping knife.

WE GUARANTEE THAT THE ALUMINUM COMB WILL

- Increase your production.
- Enable you to control foulbrood and other diseases.
- Prevent destruction from moths and rodents.
- Control the breeding of drones.
- Prevent loss from melting of combs.
- Save in labor and worry.
- Last forever with proper care.

In California, where the Honey Flow has started, thousands of these combs are in use and are now completely filled with brood and honey.

Price \$6 for Ten Combs, F. O. B., Los Angeles, Cal.

ORDER TODAY FROM

THE ALUMINUM HONEYCOMB CO.

Sales Offices: 600 Central Building, Sixth and Main Streets

LOS ANGELES, CAL.

Factory at Upland, Cal.

TENNESSEE-BRED QUEENS

Forty-Seven Years' Experience in Queen-Rearing

Breed Three-Band Italians Only

	Nov. 1 to June 1			June 1 to July 1			July 1 to Nov. 1		
	1	6	12	1	6	12	1	6	12
Untested	\$2.00	\$ 8.50	\$15.00	\$1.50	\$ 7.50	\$18.50	\$1.25	\$ 6.50	\$11.50
Select Untested ..	2.25	9.50	18.00	1.75	9.00	16.00	1.50	7.50	18.50
Tested	3.00	16.50	30.00	2.50	12.00	22.00	2.00	10.50	18.50
Select Test.d	3.50	19.50	35.00	3.00	16.50	30.00	2.75	15.00	27.00

Capacity of yard, 5,000 queens a year.

Select queen, tested for breeding, \$5.

The very best queen, tested for breeding, \$10.

Queens for export will be carefully packed in long distance cages, but safe arrival is not guaranteed. I sell no nuclei, or bees by the pound.

JOHN M. DAVIS, Spring Hill, Tenn.

EXPERIENCE COUNTS

An experienced beekeeper in Iowa writes:

"I must say it is a pleasure to use Lewis Beeware. Have used some that was cheaper, but the difference in quality vastly more than compensates for the difference in price."

A word to the wise—USE LEWIS BEEWARE. Write today. Dept. B

WESTERN HONEY PRODUCERS
1929-1931 FOURTH STREET
SIOUX CITY, IOWA

BEE SUPPLIES

Q We carry a complete stock of supplies at all times, and can make prompt shipments. Our prices will interest you.

Q A trial order will convince you that our prices and goods are right.

Send Us Your Inquiries

A. H. RUSCH & SON CO.
REEDSVILLE, WIS.

BEES

We furnish full colonies of Italian bees in double-walled hives, single-walled hives and shipping boxes. Three-frame nucleus colonies and bees by the pound. Tested Italian queens, \$2; untested, \$1.50. Price list free

I. J. STRINGHAM, Glen Cove, N. Y.
NASSAU, CO.

Write for Price List and
Booklet descriptive of

**HIGH-GRADE
Italian Queens**

JAY SMITH
Route 3
Vincennes, Ind.



**Archdekin's Fine Italian Queens and
Pound Packages**

Untested queens, 75c each, 6 for \$4.25; doz., \$8. Select tested, \$1.25. Safe arrival of queens guaranteed.

Package bees, without queen, \$1.75 per lb. Packages, with queen, 1 lb. and queen, \$8.50; 2-lb. and queen, \$8.75; 3-lb. and queen, \$4.75.

My package is best and lightest in use. Saves bees and express. In case of loss in transit, I will replace loss or recover from express company upon proper presentation of loss by customer. I fully protect my customers from loss.

J. F. ARCHDEKIN,
Big Bend, La.

Golden Queens

After April 1, untested \$1.25 each, 6 for \$7, or \$13 per doz. or 50 for \$48. Also untested 3-band at same price; tested, \$3 each, and my very best \$5 each. Satisfaction.

R. O. COX
Route 4, Greenville, Alabama

Don't stop advertising, because honey is high. Make it more in demand, so the price will stay where it is. Little stickers on your letters, papers, etc., will help. Printed as below in bright red.

EAT HONEY
NATURE'S OWN SWEET AIDS DIGESTION

Price of 1,000 gummed, 35c.
American Bee Journal Hamilton, Illinois

WESTERN BEEKEEPERS!

We handle the finest line of Bee Supplies. Send for our 68-page catalog. Our prices will interest you.

The Colorado Honey-Producers' Association
1424 Market Street, Denver, Colo.

Established 1885

We are still furnishing beehives made of white pine; they will last. A. I. Root Co.'s make of bee supplies kept in stock. Send for catalog giving full particulars; free for the asking. Beeswax in exchange for supplies, or cash.

JOHN NEBEL & SON SUPPLY CO.
High Hill, Montg. Co., Mo.

Mr. Beekeeper: Do you realize the busy season is at hand with prospects the best they have been in a long time? (Bees are strong and clover making rapid progress.)

Also, in concluding your plans, have you considered those customers who will buy and eat your comb honey, but will not touch your extracted honey at any price? Remember the successful manufacturer and producer turns out what the customer wants, not what he wants to produce. Remember the demands of the market.

Transportation is slow and uncertain. However, we have a complete and liberal stock of Lewis Bee-ware (Made like Furniture) and Dadant's Foundation (the leading Foundation manufactured in the World.) These Superior goods are at as low a price as sound business will warrant, not a price based on cheap, shoddy goods that can never please you any more than second-hand furniture or an old worn-out car or truck.

Parcel post orders receive prompt shipment, as do express orders, or better yet, if you live in driving distance, take your truck or car and come over and you will have what you want when you want it.

Have you our Lewis Bee Supply Catalog, or Beginner's Book? If not, a postal card will bring same. For Service and the Best in Apiculture, address the

DEROY TAYLOR CO., Newark, Wayne Co., New York

Do not forget the State Meeting at our Home Apiary August 1.

MARSHFIELD GOODS

BEEKEEPERS

We manufacture millions of sections every year that are as good as the best. The cheapest for the quality; best for the price. If you buy them once, you will buy again.

We also manufacture hives, brood-frames, section holders and shipping cases.

Our Catalog is free for the asking

MARSHFIELD MFG. CO., Marshfield, Wis.



A BIG STOCK OF BEE SUPPLIES

ALL BOXED, ready to ship at once—thousands of Hoffman Frames; also Jumbo and Shallow Frames

of all kinds—100 and 200 in a box. Big stock of Sections and fine polished Dovetailed Hives and Supers.

I can give you bargains. Send for a new price list. *I can save you money.*

Will take your Beeswax in Trade at Highest Market Price

CHAS. MONDENG
159 Cedar Lake Road MINNEAPOLIS, MINN.

PORTER



For sale by all dealers.
If no dealer, write factory
R. & E. C. PORTER, MFRS.
Lowistown, Illinois, U. S. A.
(Please mention Am. Bee Journal when writing)

BEEKEEPERS

Do not wait until the last minute to order your supplies. Order now. We carry a complete line of beekeepers' supplies. Send us a list of your requirements for this season and we will quote you our lowest prices.

Send for our 1919 Catalog

AUGUST LOTZ COMPANY
BOYD, WISCONSIN

"QUEENS OF QUALITY"

The genuine "Quality" kind of 3-band Italians—bred strictly for business. Write for circular.

J. IVAN BANKS, Dowelltown, Tenn.

BARNES' Foot-Power Machinery

Read what J. L. Parent, of Charlton, N. Y., says: "We cut with one of your Combined Machines last winter 50 chaff hives with 7-in. cap, 100 honey-racks, 500 frames and a great deal of other work. This winter we have a double amount of hives, etc., to make with this saw. It will do all you say of it." Catalog and price list free.

W. F. & JOHN BARNES
995 Ruby St., ROCKFORD, ILLINOIS

REWARD

GOOD TILL MAY TWENTIETH

Find the Mistake in our NEW CATALOG No. 114

Look thru that catalog right now (if you haven't a copy ask us for one.) when you find the mistake write us

MADE RIGHT
BEE SUPPLIES

Quality Service

The Time is Limited **HUNT UP THAT MISTAKE NOW**, while you're thinking about it.

THE KRETCHMER MFG. CO., Dept. A, Council Bluffs, Ia.

REAL PEOPLE

That's what the doughboys called The Salvation Army workers on the battle-fields and back of the lines in France.

They were "real people" to the soldier, because they were just like the folks back home, with hands accustomed to work and eyes always ready to smile.

And now these same "real people" back from the war with new laurels, have built their trenches in the Streets of Poverty in America. They well wage the fight for the poor and unfortunate at home, just as they have done for years, only on a larger scale.

The Salvation Army conducts Rescue Homes—Day Nurserie—Homes for the Helpless Aged—Lodging Houses for the Down and Outers—Fresh-Air Farms—Free Clinics.

It must extend this service everywhere where Misery and Poverty exist. It must continue to reach down and lift up the men, women and children who have fallen.

WILL YOU HELP?

THE SALVATION ARMY HOME SERVICE FUND MAY 19 TO 26

*Do you realize,
Mr. Beeman,
that
the first of March
has passed?*

June will soon be here
with its
hustle and bustle
for
Bee Supplies

"GRIGGS SAVES YOU FREIGHT" TOLEDO

Why not send us your order now and get the goods ready? Don't delay. A list of goods wanted brings prices back by return mail.

BEESWAX

We use large quantities. Cash or in exchange for supplies. FREE catalogue ready to mail.

S. J. GRIGGS & CO.
Department 25 TOLEDO, OHIO

"GRIGGS SAVES YOU FREIGHT"

Now is the time to advertise Honey. Send to the American Bee Journal for new Honey Label Catalog



WHAT IT IS
U. S. GOVERNMENT
REPORT
ON
CYPRESS
"THE WOOD ETERNAL"
VOL. I
CYPRESS
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WRITE FOR THIS BOOK

SOUTHERN CYPRESS MANUFACTURERS' ASSOCIATION
1251 Hibernia Bank Building, New Orleans, La., or 1251 Heard National Bank Building, Jacksonville, Fla.

Insist on TRADE-MARKED Cypress at Your Local Lumber Dealer's

If he hasn't it, *LET US KNOW IMMEDIATELY*

Is Uncle Sam's Word Good Enough?

Then Mr. Bee-man, just write for Volume I of the Cypress Pocket Library and read what our respected Uncle has to say about Cypress ("The Wood Eternal.") You'll then see why any beehive, or bottom or winter case not made of Cypress is not so good as it might be. 42 other volumes all free. The list is in Volume I. Write and it comes.

Service and Quality Bee Supplies

Bee Supplies

Order your supplies early, so as to have everything ready for the honey flow, and save money by taking advantage of the early order cash discount. Send for our catalog — better still, send us a list of your supplies and we will be pleased to quote you.

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